

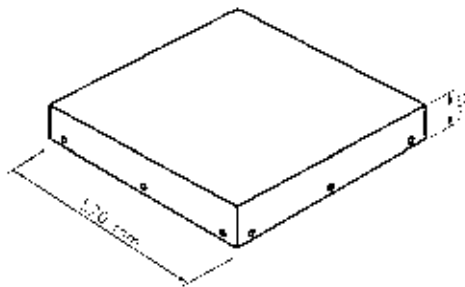


## Mobile Antennas 25 ...1900 MHz

ORDER NUMBER	TYPE
WS F20 74 1	68 ... 87.5 MHz, with radome, low profile
WS F30 31 1. .	3 dB 137 ... 174 MHz
WS F30 31 1. .	mountings
WS F30 74 15/6	146 ... 174 MHz, GSM, UMTS, WLAN with radome, low profile
WS F30 84 1.	140 ... 174 MHz with radome
WS F40 31 1.	3 dB 220 ... 470 MHz
WS F40 31 1.	mountings
WS F40 61 17 .	380 - 400 MHz
WS F40 68 16	4 dB 370 ... 390 MHz
WS F40 74 14	380 ... 430 MHz with radome, low profile
WS F40 83 1.	4 dB 370 ... 470 MHz with radome
WS F40 84 1.	370 ... 470 MHz with radome
WS F60 31 1. 8	3 dB 860 - 960 MHz
WS F60 31 1. 8	mountings
WS F60 83 18	800 - 970 MHz 3 dB with radome
WS F.R. .	Radiators for base WS F0R 65
WS F0R 65 D	Base for radiators and spring to base



**ANTENNA FOR VEHICLES**  
**WS F20 74 1**  
**68 ... 88 MHz**



<b>TYPE</b>	<b>WS F20 74 1:</b> (desired frequency)
<b>DESCRIPTION</b>	omnidirectional antenna, very low construction The antenna must be adjusted on the car, either from the roof or from the interior of the vehicle. When placing your order indicate your preference interior or exterior adjustment.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. $\lambda/4$ dipole)
<b>VSWR</b>	< 1.5 on Tx frequency
<b>POWER</b>	50 watts
<b>RADIATION PATTERN</b>	omnidirectional
<b>GROUNDING</b>	all metal parts are DC grounded
<b>TERMINATION</b>	BNC female, other termination on request
<b>MOUNTING</b>	with 12 screws on conducting surface of at least 1 m <sup>2</sup>
<b>BREAKDOWN VOLTAGE</b>	3000 VDC
<b>MATERIAL</b>	radiating element and base plate: aluminium Cr/Ni -plated copper, bolts of stainless steel, radome of fiberglass
<b>WEIGHT</b>	5.1 kg
<b>WINDAREA</b>	0.05 m <sup>2</sup>
<b>WINDLOAD</b>	66 N at 150 km/h 49 N at 130 km/h

KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

**wipic**
**MOBILE ANTENNA**  
**WS F30 31 1. .**  
**137... 174 MHz**

**TYPE NO.**            **WS F30 31 1. 7:**    **137 ... 149 MHz**  
**WS F30 31 1. 8:**    **146 ... 159 MHz**  
**WS F30 31 1. 9:**    **156 ... 174 MHz**  
tuned on the requested frequency

**DESCRIPTION**        The antenna is decoupled from the carrier tube and needs no counter weight. The antenna is specially designed for motorcycles and vehicles with plastic roofs.

**POLARIZATION**      vertical

**IMPEDANCE**          50  $\Omega$

**GAIN**                  3 dB (ref to a  $\lambda/4$  dipole)

**VSWR**                 < 1.3 on tuned frequency

**POWER**                30 Watt

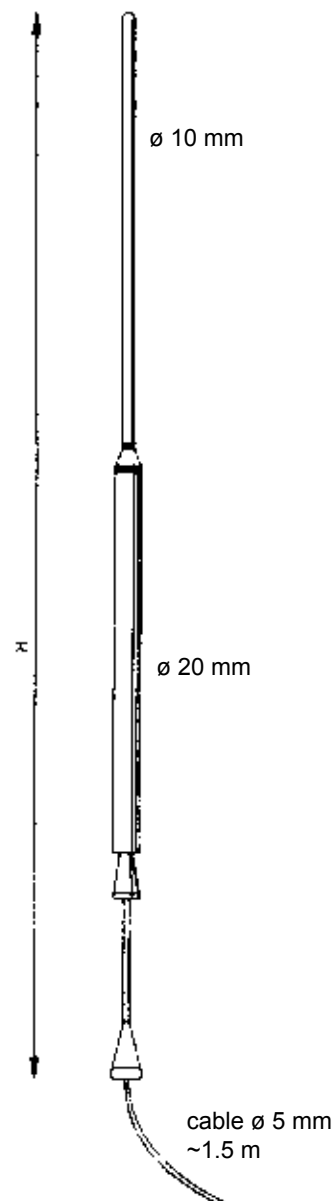
**TERMINATION**        1.5 m cable with  $\varnothing$  5mm, without connector  
the cable must not be shortened (transformer)

**GROUNDING**          radiator not grounded

**MOUNTING**            see next page

**MATERIAL**            anodized aluminium, bolts and spring of stainless steel, rugged plastic base

**HEIGHT H**             **WS F30 31 1. 7:**        1.2 m  
**WS F30 31 1. 8:**        1.15 m  
**WS F30 31 1. 9:**        1.1 m



KW 1-08

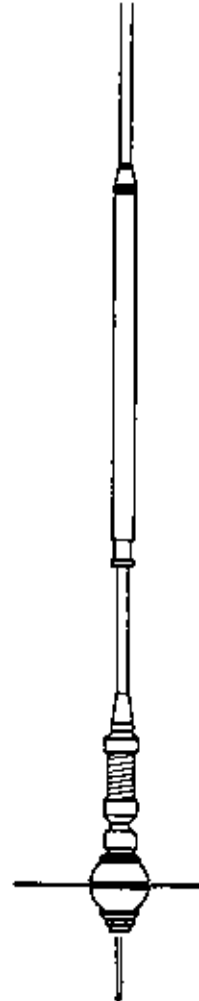
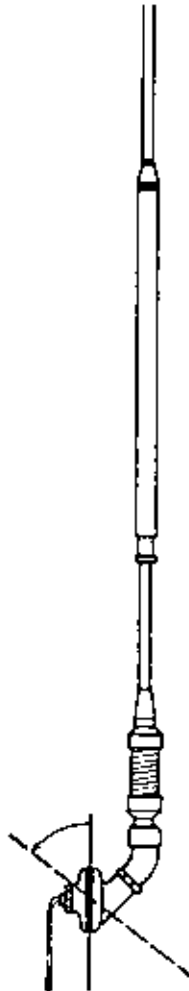
WIPIC reserves the right to amend specifications in the light of continuing development.

Section 5. 3/19

**wipic**
**MOBILE ANTENNA  
WS F30 31 1. .  
137 ... 174 MHz**
**WS F30 31 12 .**  
with spring

**WS F30 31 13 .**  
no longer available

**WS F30 31 14 .**  
with spring and stright  
mounting flange

**WS F30 31 15 .**  
with mounting clamp

**MOUNTING:**  
on horizontal plane  
hole  $\varnothing$  16 mm

**WEIGHT:** 750 g

**MOUNTING:**  
on planes with no slope  
hole  $\varnothing$  24 mm

**WEIGHT:** 1100 g

**MOUNTING:**  
on masts, ralings etc.  
with metallic assembly  
line

**WEIGHT:** 450 g

KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

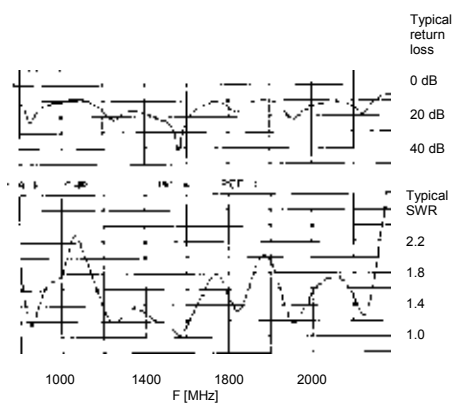
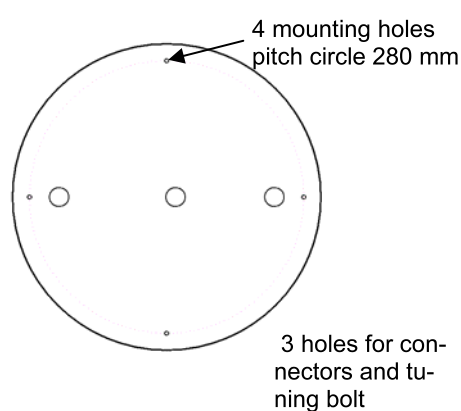
**wipic**

**DUAL BAND MOBILE ANTENNA  
WS F30 74 15/6  
146 ... 174 MHz / 860 - 2500 MHz**



320 mm

85 mm



<b>BAND 146 ... 174 MHz</b>	tuned on desired frequency
<b>DESCRIPTION</b>	omnidirectional antenna, very low profile construction, radome protected The antenna is tunable on conducting or nonconducting surfaces.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	-2 dB (ref. λ/4 antenna)
<b>VSWR</b>	< 1.5 on tuned frequency bandwidth 1 MHz (VSWR 2)
<b>POWER</b>	150 watts
<b>RADIATION PATTERN</b>	omnidirectional
<b>GROUNDING</b>	all metal parts are DC grounded
<b>TERMINATION</b>	BNC female, other termination on request

<b>BAND 860-2500 MHz</b>	<b>GSM 900, 1800, 1900, UMTS, WLAN</b>
<b>DESCRIPTION</b>	built in the radome of the 2 m antenna
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>POWER</b>	25 W
<b>RADIATION PATTERN</b>	almost round on all bands
<b>TERMINATION</b>	TNC female
<b>MOUNTING</b>	with 4 bolts Ø 5 mm (not included) 3 holes for connectors and tuning bolt, drill 20 mm
<b>MATERIAL</b>	aluminium, bolts of stainless steel, radome of weather-resistant ASA
<b>WEIGHT</b>	1 kg
<b>WINDAREA</b>	0.02 m <sup>2</sup>
<b>WINDLOAD</b>	26 N at 150 km/h 20 N at 130 km/h

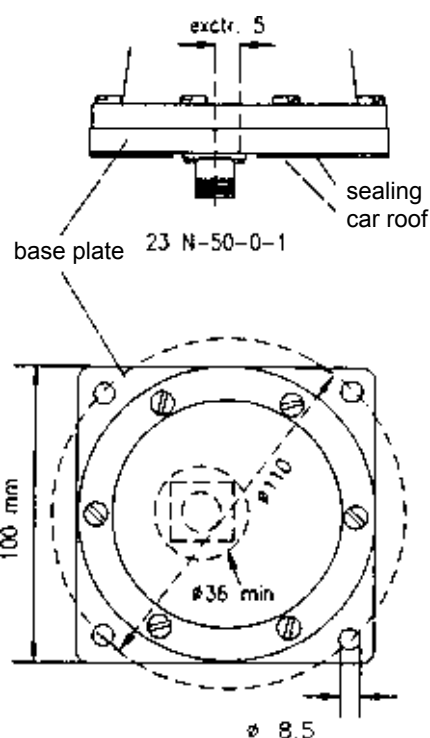
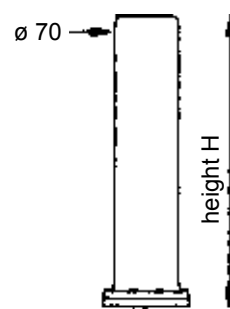
WIPIC reserves the right to amend specifications in the light of continuing development.  
KW 9-04

**wipic**

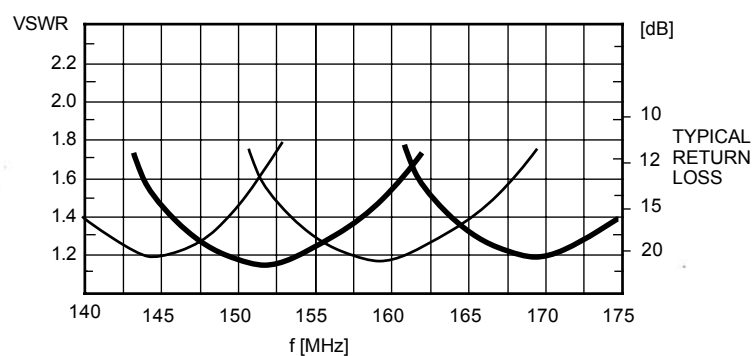
**MOBILE ANTENNA  
WS F30 84 1.  
142 ... 174 MHz**

TYPE NO.	type	frequency	height
	WS F30 84 16:	142 - 149 MHz	470 mm
	WS F30 84 17:	147 - 156 MHz	455 mm
	WS F30 84 18:	155 - 166 MHz	430 mm
	WS F30 84 19:	164 - 174 MHz	410 mm

Tested for rail use according to EN 50388:05

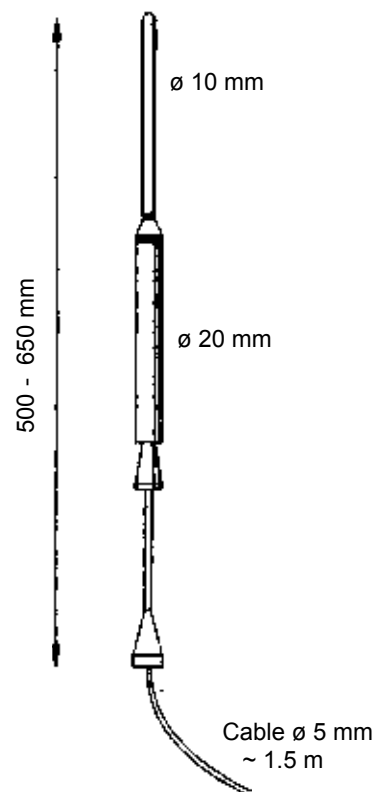


<b>POLARIZATION</b>	vertikal
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/4 Dipol)
<b>VSWR</b>	< 1.4
<b>POWER</b>	300 Watt
<b>TERMINATION</b>	N chassis female 23 N-50-0-1
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	on conductive surface with 1m <sup>2</sup> at least with 4 screws M8
<b>MATERIAL</b>	aluminium, bolts of stainless steel, radome of uv-stabilized polyethylene
<b>WEIGHT</b>	0.9 kg
<b>WIND AREA</b>	0.03 m <sup>2</sup>
<b>WIND LOAD</b>	28 N at 150 km/h 38 N at 130 km/h 68 N at 200 km/h



KW 1-08

WIPIIC reserves the right to amend specifications in the light of continuing development.

**wipic**
**ANTENNA FOR MOTO CYCLES  
WS F40 31 1. ( freq.)  
220 ... 470 MHz**


<b>TYPE NO.</b>	<b>WS F40 31 1. : (desired frequency)</b> other frequency on request
<b>DESCRIPTION</b>	The antenna is decoupled from the carrier tube and needs no counter weight. The antenna is specially designed for motorcycles and vehicles with plastic roofs.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	3 dB (ref. to a λ/4 dipole)
<b>VSWR</b>	< 1.3 on tuned frequency
<b>POWER</b>	30 Watt
<b>TERMINATION</b>	1.5 m cable with ø 5mm, without connector the cable must not be shortened (transformer)
<b>GROUNDING</b>	radiator not grounded
<b>MOUNTING</b>	see next page
<b>MATERIAL</b>	aluminium, bolts and spring of stainless steel, rugged plastic base

WIPIC reserves the right to amend specifications in the light of continuing development.

KW 1-08

**wipac**
**MOBILE ANTENNA  
WS F40 31 1.  
220 ... 470 MHz**
**WS F40 31 12**

with spring

**WS F40 31 13**

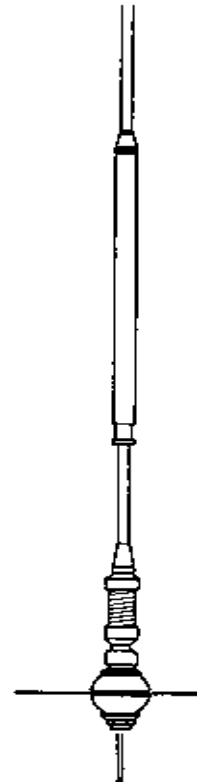
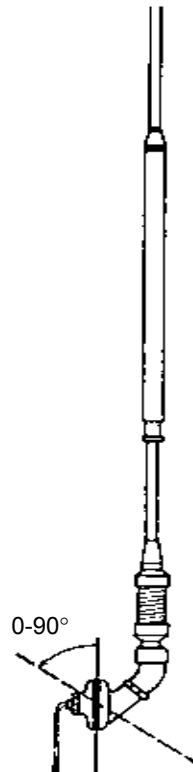
no longer available

**WS F40 31 14**

 with spring and stright  
mounting flange

**WS F40 31 15**

with monting clamp


**MOUNTING:**  
on horizontal plane  
hole  $\varnothing$  16 mm

**WEIGHT:** 650 g

**MOUNTING:**  
on planes with no slope  
hole  $\varnothing$  24 mm

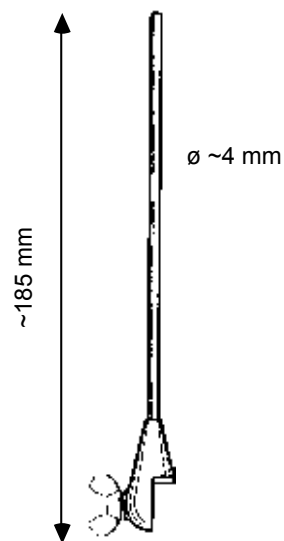
**WEIGHT:** 1100 g

**MOUNTING:**  
on masts, railings etc.  
with metallic assembly  
line

**WEIGHT:** 350 g

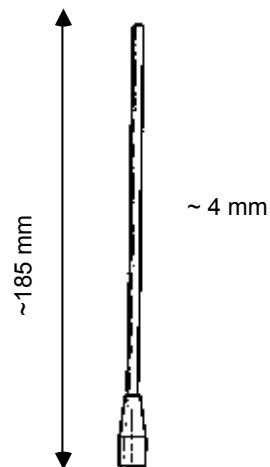
KW 1-08



**wipac**
**RADIATER TO MOBILE ANTENNA  
WS F40 61 17  
380 - 400 MHz**


<b>TYPE NO.</b>	<b>WS F40 61 17 radiator: 380 - 400 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	bright
<b>POLARISATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 dB (ref. to a $\lambda/4$ dipole)
<b>SWR</b>	< 2 (tuned to a commercial base)
<b>MAX. POWER</b>	30 watts
<b>MOUNTING</b>	swivel-joint fitting
<b>MATERIAL</b>	whip and screw: stainless steel mount: brass nickel-plated wing: robust plastic
<b>LENGTH</b>	~ 185 mm
<b>WEIGHT</b>	~ 65 g

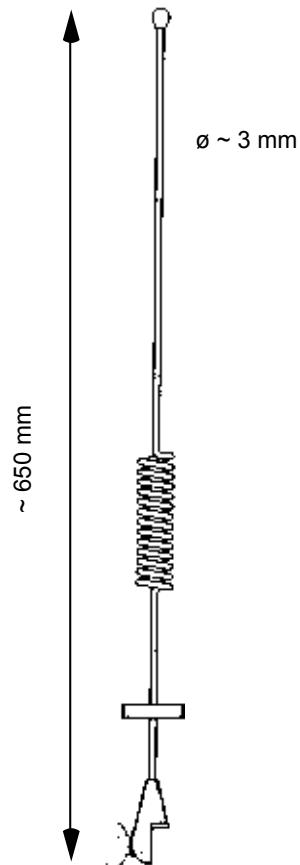
KW 1-08

**wipac**
**RADIATOR TO MOBILE ANTENNA  
WS F40 61 17 1  
380 - 400 MHz**


<b>TYPE NO.</b>	<b>WS F40 61 17 1 radiator: 380 - 400 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	surface black or bright
<b>POLARISATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 dB (ref. to a $\lambda/4$ dipole)
<b>SWR</b>	< 2 (tuned to a commercial base)
<b>MAX. POWER</b>	30 watts
<b>MOUNTING</b>	M6 thread or screw
<b>MATERIAL</b>	whip: stainless steel mount: brass
<b>LENGTH</b>	~ 185 mm
<b>WEIGHT</b>	~ 45 g

KW 1-08

Section 5. 10/19

**wipac**
**RADIATER TO MOBILE ANTENNA  
WS F40 68 16  
380 - 400 MHz**


<b>TYPE NO.</b>	<b>WS F40 68 16 radiator: 380 - 400 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	bright
<b>POLARISATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	4 dB (ref. to a $\lambda/4$ dipole)
<b>SWR</b>	< 2 (tuned to a commercial base)
<b>MAX. POWER</b>	30 watts
<b>MOUNTING</b>	swivel-joint fitting
<b>MATERIAL</b>	whip and screw: stainless steel mount: brass nickel-plated wing: robust plastic
<b>LENGTH</b>	~ 650 mm
<b>WEIGHT</b>	~ 125 g

KW 1-08

**wipic**

**LOW PROFILE OMNIDIRECTIONAL ANTENNA**  
**WS F40 74 14**  
**380 - 430 MHz**

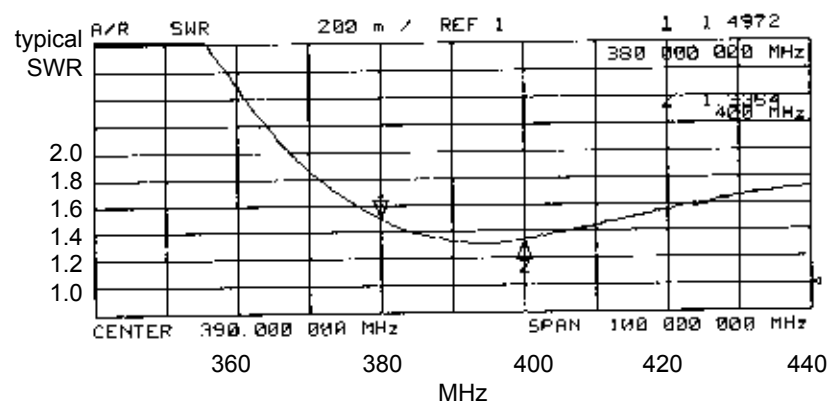


upper  $\varnothing$  120

height 90 mm

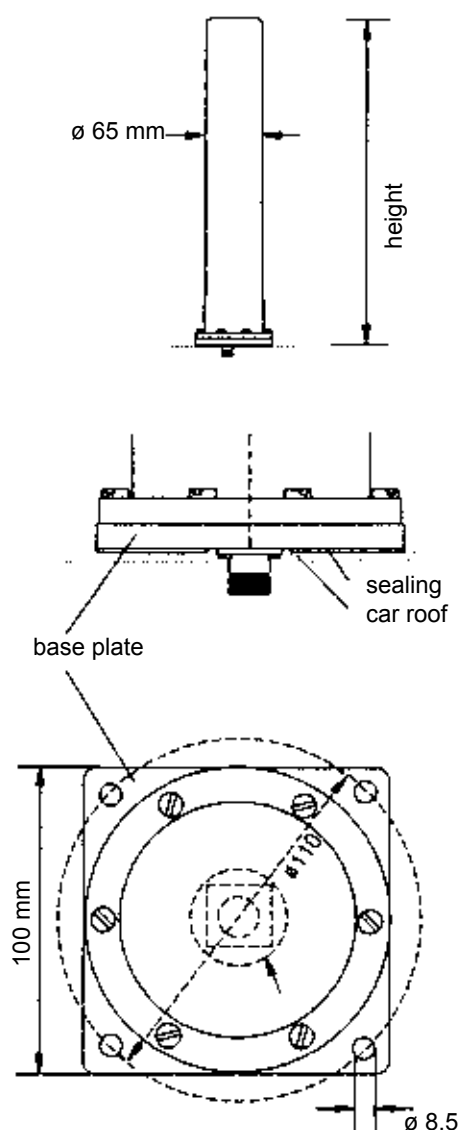
lower  $\varnothing$  175 mm

<b>TYPE NO.</b>	<b>WS F40 74 14:</b> <b>380 - 430 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	omnidirectional antenna, low profile
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 dB (ref. $\lambda/4$ dipole)
<b>VSWR</b>	$\leq 1.7$
<b>POWER</b>	150 Watt
<b>TERMINATION</b>	20 cm cable RG 58 with FME male other termination on request
<b>GROUNDING</b>	al metal parts are DC grounded
<b>MOUNTING</b>	one-hole mounting drilling diameter 24 mm on a conductive surface with 1m <sup>2</sup> at least
<b>MATERIAL</b>	aluminium, bolts of stainless steel radome of UV-stabilized polyethylene
<b>WEIGHT</b>	0.8 kg
<b>WIND AREA</b>	0.011 m <sup>2</sup>
<b>WIND LOAD</b>	14 N at 150 km/h 10 N at 130 km/h 25 N at 200 km/h



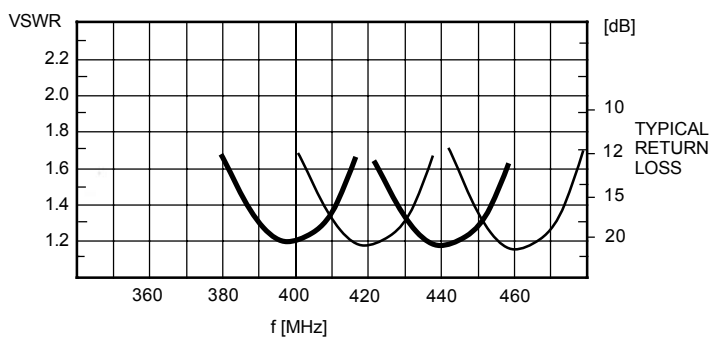
KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.


**MOBILE ANTENNA**  
**WS F40 83 1.**  
**370 - 470 MHz**


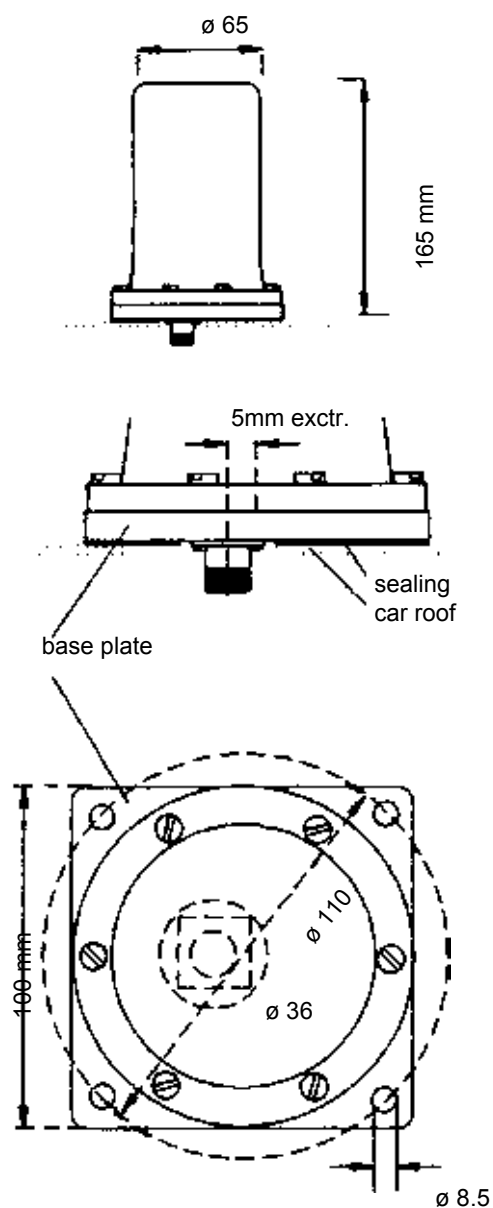
<b>TYPE NO.</b>	<b>WS F40 83 15:</b>	<b>370 - 400 MHz</b>
	<b>WS F40 83 16:</b>	<b>390 - 410 MHz</b>
	<b>WS F40 83 17:</b>	<b>410 - 430 MHz</b>
	<b>WS F40 83 18:</b>	<b>430 - 450 MHz</b>
	<b>WS F40 83 19:</b>	<b>450 - 470 MHz</b>
Tested for rail use according to EN 50388:05		

<b>POLARIZATION</b>	vertikal
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	4 dB (ref. a λ/4 dipole)
<b>VSWR</b>	< 1.5
<b>POWER</b>	150 Watt
<b>TERMINATION</b>	N chassis female 23 N-50-0-1 other termination on request
<b>GROUNDING</b>	radiator not DC grounded
<b>MOUNTING</b>	on conductive surface with 1m <sup>2</sup> at least
<b>MATERIAL</b>	aluminium, steel, bolts of stainless steel, radome of UV-stabilized polyethylene
<b>HEIGHT</b>	WS F .... 5-7      620 mm WS F .... 8-9      655 mm
<b>WEIGHT</b>	1.0 kg
<b>WIND AREA</b>	0.04 m <sup>2</sup>
<b>WIND LOAD</b>	51 N at 150 km/h 38 N at 130 km/h 91 N at 200 km/h

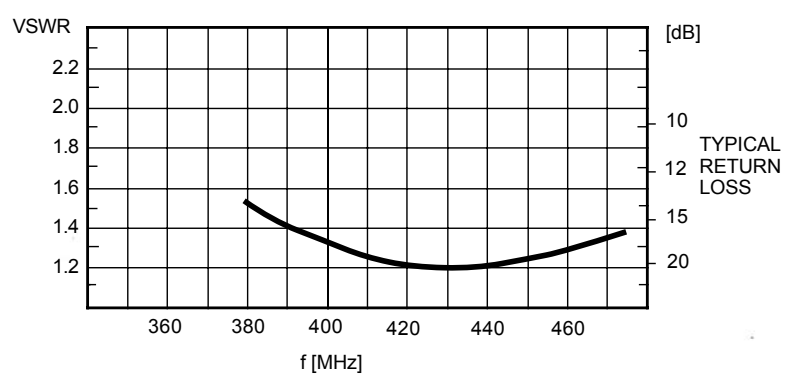


KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

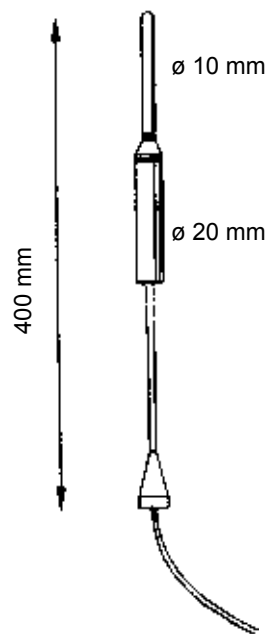
**wipic**
**MOBILE ANTENNA  
WS F40 84 1.  
370 ... 470 MHz**


<b>TYPE NO.</b>	<b>WS F40 84 19:</b> 400 - 470 MHz <b>WS F40 84 18:</b> 370 - 420 MHz Tested for rail use according to EN 50388:05
<b>DESCRIPTION</b>	broadband omnidirectional antenna with radome
<b>POLARIZATION</b>	vertikal
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 dB (ref. $\lambda/4$ Dipol)
<b>VSWR</b>	$\leq 1.5$ at the limits of the band < 1.5
<b>POWER</b>	150 Watt
<b>TERMINATION</b>	N chassis female 23 N-50-0-1 other termination on request
<b>GROUNDING</b>	al metal parts are DC grounded
<b>MOUNTING</b>	on conductive surface with 1m <sup>2</sup> at least
<b>MATERIAL</b>	aluminium, bolts of stainless steel radome of UV-stabilized polyethylene
<b>WEIGHT</b>	0.9 kg
<b>WIND AREA</b>	0.011 m <sup>2</sup>
<b>WIND LOAD</b>	14 N at 150 km/h 10 N at 130 km/h 25 N at 200 km/h

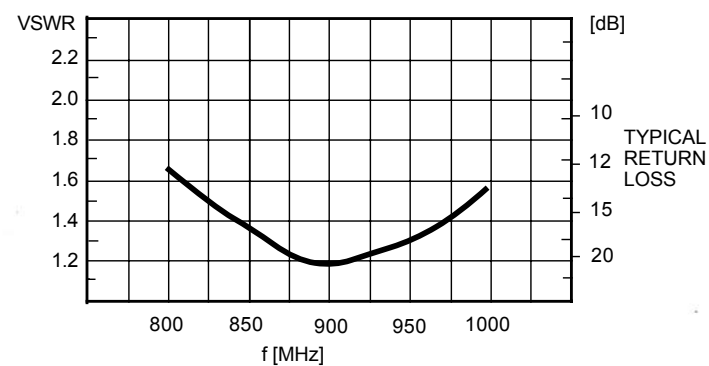


KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

**wipic**
**MOBILE ANTENNA  
WS F60 31 1. 8  
860 - 960 MHz**


<b>TYPE NO.</b>	<b>WS F60 31 1. 8: 860 - 960 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	The antenna is decoupled from the carrier tube and needs no counter weight. The antenna is specially designed for motorcycles and vehicles with plastic roofs.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	3 dB (ref. ta a $\lambda/4$ dipole)
<b>VSWR</b>	< 1.5 on tuned frequency
<b>POWER</b>	20 Watt
<b>TERMINATION</b>	1.5 m cable with $\varnothing$ 5mm, without connector the cable must not be shortened (transformer)
<b>GROUNDING</b>	radiator not grounded
<b>MOUNTING</b>	see next page
<b>MATERIAL</b>	anodized aluminium, bolts and spring of stainless steel, rugged plastic base



KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

Section 5. 15/19

**wipic**
**MOBILE ANTENNA  
WS F60 31 1. 8  
860 - 960 MHz**
**WS F60 31 12 8**

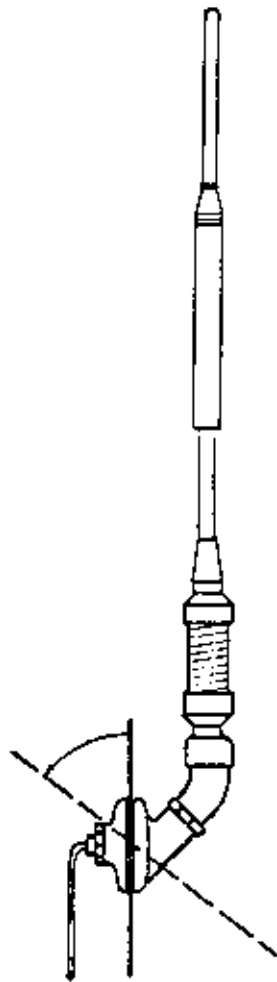
with spring

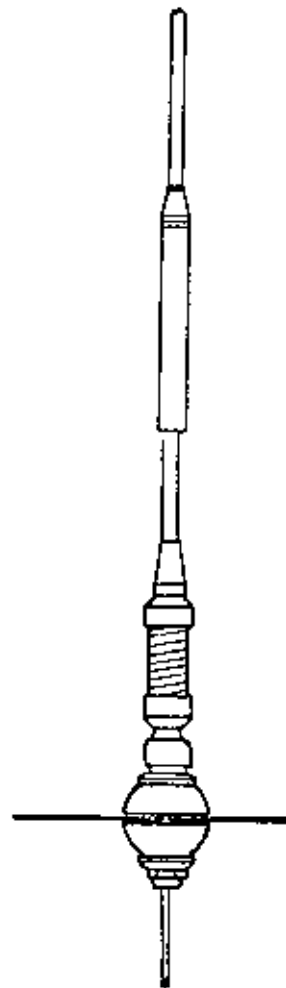

**MOUNTING:**  
on horizontal plane  
hole  $\varnothing$  16 mm

**WEIGHT:** 600 g

**WS F60 31 13 8**

no longer available


**WS F60 31 14 8**

 with spring and stright  
mounting flange

**MOUNTING:**  
on planes with no slope  
hole  $\varnothing$  24 mm

**WEIGHT:** 1000 g

**WS F60 31 15 8**

with monting clamp

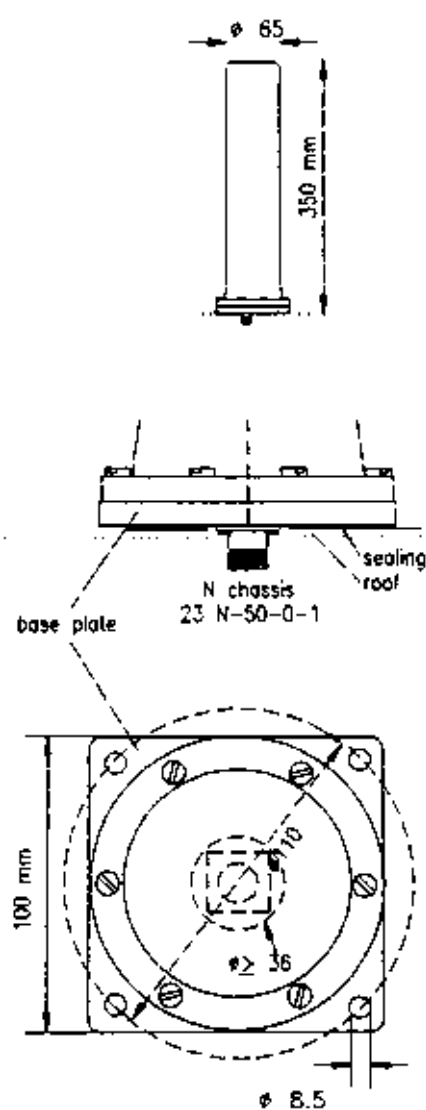

**MOUNTING:**  
on masts, ralings etc.  
with metallic assembly  
line

**WEIGHT:** 300 g

KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.



**wipic**
**3 dB MOBILE ANTENNA  
WS F60 83 18  
870 - 930 MHz**


<b>TYPE NO.</b>	<b>WS F60 83 18: 870 - 930 MHz</b>
<b>DESCRIPTION</b>	omnidirectional antenna with radome
<b>POLARIZATION</b>	vertikal
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	3 dB (ref. to a λ/4 dipole)
<b>VSWR</b>	870 - 930 MHz ≤ 2 800 - 970 MHz ≤ 4
<b>POWER</b>	150 Watt
<b>TERMINATION</b>	N chassis female 23 N-50-0-1 other termination on request
<b>GROUNDING</b>	radiator not DC grounded
<b>MOUNTING</b>	with four bolts on conductive surface with 0.25m <sup>2</sup> at least
<b>MATERIAL</b>	steel, aluminium, bolts of stainless steel radome of UV-stabilized polyethylene
<b>WEIGHT</b>	1.0 kg
<b>WIND AREA</b>	0.023 m <sup>2</sup>
<b>WIND LOAD</b>	29 N at 150 km/h 22 N at 130 km/h 52 N at 200 km/h

Tested for rail use according to EN 50388:05

KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

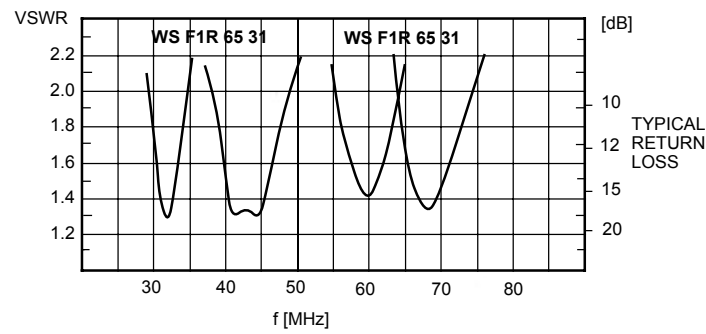
Section 5. 17/19



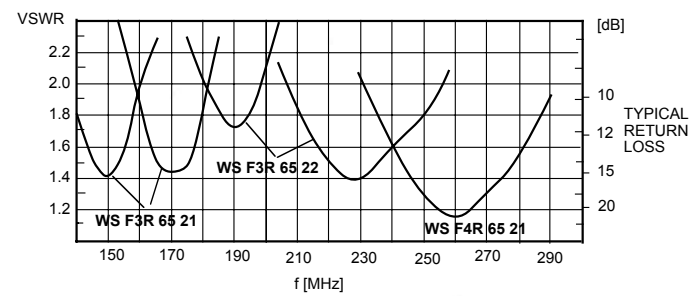
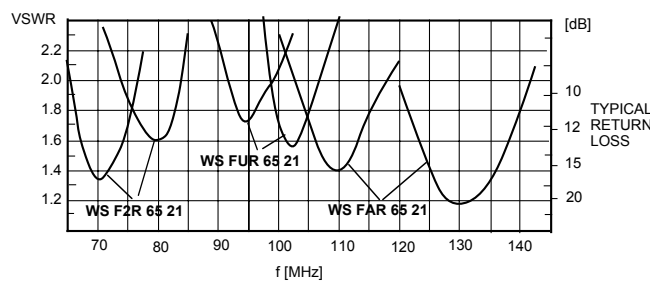
### RADIATORS TO ANTENNAS FOR RADIATION MEASUREMENTS 30 ... 600 MHz



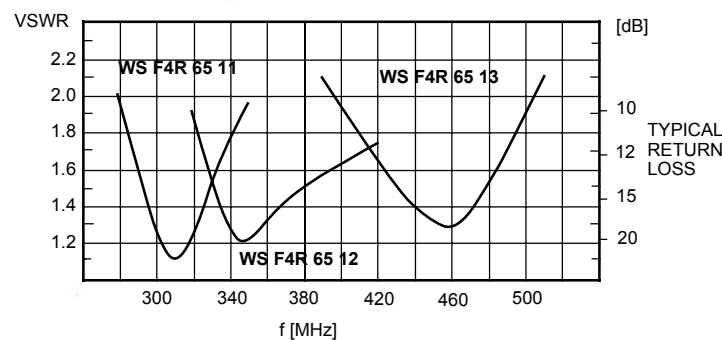
TYPE	FREQUENCY MHz	LENGTH mm	VSWR on tuned freq.	BANDWIDTH VSWR < 2
WS F1R 65 31	25 ... 58	1700 - 2740	< 1.5	± 2 MHz
WS F2R 65 31	30 ... 75	1020 - 2300	< 1.5	± 4 MHz

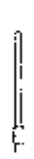


TYPE	FREQUENCY MHz	LENGTH mm	VSWR on tuned freq.	BANDWIDTH	VSWR
WS F2R 65 21	68 ... 88	1110 - 770	< 2.2	± 5 MHz	< 2
WS FUR 65 21	88 ... 104	770 - 620	< 2.0	± 5 MHz	< 2.2
WS FAR 65 21	104 ... 144	630 - 420	< 1.5	± 10 MHz	< 2
WS F3R 65 21	144 ... 174	435 - 340	< 1.5	± 10 MHz	< 2
WS F3R 65 22	174 ... 235	355 - 240	< 2.0	± 15 MHz	< 2.5
WS F4R 65 21	235 ... 290	250 - 170	< 1.4	± 30 MHz	< 2

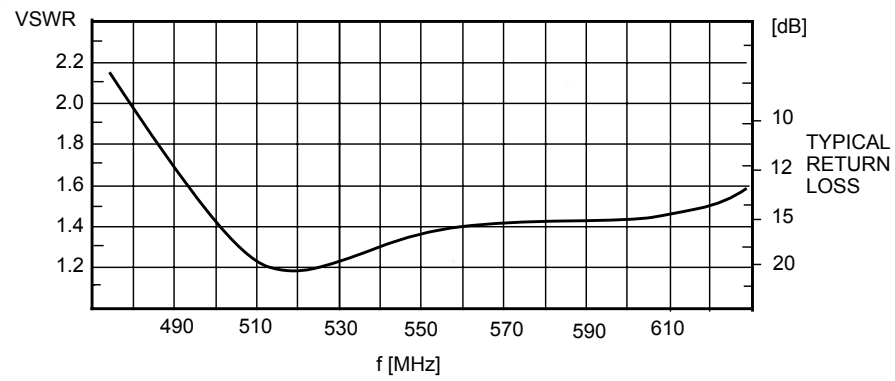


TYPE	FREQUENCY MHz	LENGTH mm	VSWR	BANDWIDTH	VSWR
WS F4R 65 11	290 - 330	160	< 1.6	280-350 MHz	< 2
WS F4R 65 12	330 - 400	130	< 1.6	320-420 MHz	< 2
WS F4R 65 13	400 - 500	90	< 1.9	390-510 MHz	< 2.1





TYPE	FREQUENCY MHz	LENGTH mm	VSWR	BAND-WIDTH	VSWR
WS F4R 65 14	500 - 600	62	< 1.5	480-670 MHz < 2	



### Base for the Radiators WS F0R 65 D

**Type:**  
WS F0R 65 D (replaces WS 01 02 D)

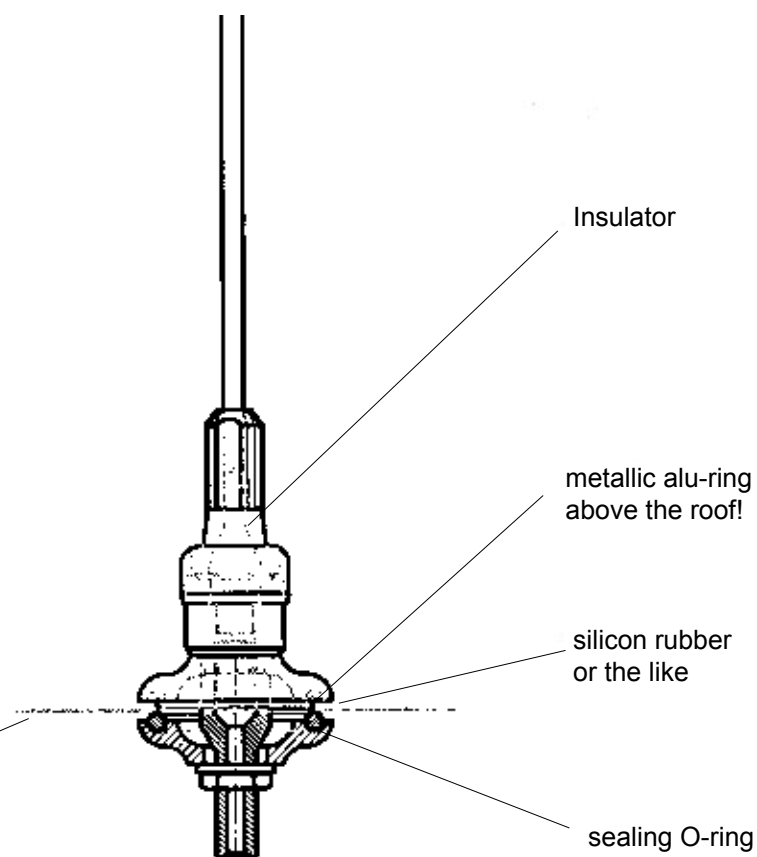
**Impedance:** 50 Ω

**Termination:**  
1m RG 58 with BNC male  
other termination on request

**Mounting:**  
It is important, that the the metallic ring and the roof of the mobile have good electrical contact!  
Hole 28+1 mm diameter  
On the roof the base shold be sealed with a silicon rubber or the like.

**Material:**  
Aluminium,  
insulator: weather resistant plastics

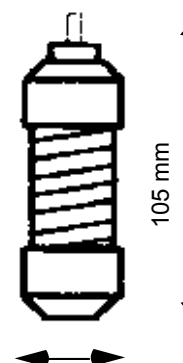
metallic roof



### Spring to base WS F0R 65 D

Length: 105 mm without bolts M8  
Diameter: 38 mm  
Material: aluminium, stainless steel  
Weight: ~ 350 g

The spring can be used for the following radiators:  
WS F1R 65 31, WS F2R 65 31,  
WS F2R 65 21, WS FUR 65 21



KW 1-08

Section 5. 19/19 38