

## 5 TECHNICAL DATA, SIGNALS, DIAGRAMS

### 5.1 Technical data

<b>Cut</b>	
HF voltage waveform for Effect 1	unmodulated sinusoidal alternating voltage
HF voltage waveform for Effect 2	pulse-modulated sinusoidal alternating voltage
Rated frequency	350 kHz
Peak voltage for Effect 1	500 V <sub>p</sub>
Peak voltage for Effect 2	800 V <sub>p</sub>
Crest factor for Effect 1	2 (ICC 80) 3 (ICC 50)
Crest factor for Effect 2	4
Cutting quality	2 coagulation effects selectable
HF rated power for Effect 1 and Effect 2	80 watts at R <sub>L</sub> = 500 ohms (ICC 80) 50 watts at R <sub>L</sub> = 500 ohms (ICC 50)
HF power limitation	1 to 80 watts in 1 watt steps (ICC 80) 1 to 50 watts in 1 watt steps (ICC 50)
Setting the HF power limitation	via up/down keys
Precision of the HF power limitation	+/- 5%
Display of the HF power limitation	7-segment display, 2 decimal places
Activation of the cutting mode	via key or pedal
HF output sockets	1

<b>Soft coagulation</b>	
HF voltage waveform	unmodulated sinusoidal alternating voltage
Rated frequency of the HF voltage	350 kHz
Peak value of the HF voltage	max. 190 V <sub>p</sub> with no load
HF rated power	50 watts at 200 ohms
HF power limitation (P <sub>HFmax.</sub> )	from 1 watt to 50 watts in 1 watt steps
Setting of the HF power limitation	via up/down keys
Display of the HF power limitation	7-segment display, 2 decimal places
Precision of the HF power limitation	+/- 5%
Activation of Soft coagulation	via key or pedal
HF output sockets	1

<b>Bipolar coagulation</b>	
HF voltage waveform	unmodulated sinusoidal alternating voltage
Rated frequency of the HF voltage	350 kHz
Peak value of the HF voltage	max. 190 V <sub>p</sub> with no load
HF rated power	50 watts at 200 ohms
HF power limitation (P <sub>HFmax.</sub> )	from 1 watt to 50 watts in 1 watt steps
Setting of the HF power limitation	via up/down keys
Display of the HF power limitation	7-segment display, 2 decimal places
Precision of the HF power limitation	+/- 5%
Activation of the bipolar coagulation	via pedal
HF output sockets	1

<b>Forced coagulation</b>	
HF voltage waveform	pulse-modulated sinusoidal alternating voltage
Rated frequency of the HF voltage	350 kHz
Peak value of the HF voltage	max. 900V <sub>p</sub>
HF rated power	50 watts at 500 ohms
HF power limitation	from 1 watt to 50 watts in 1 watt steps
Precision of the power limitation	+/- 5%
Setting of the HF power limitation	via up/down keys
Display of the HF power limitation	7-segment display, 2 decimal places
Activation of the forced coagulation	via key or pedal
HF output sockets	1

<b>Safety features</b>	
Protection class according to EN 60 601-1	I
Type according to IEC 601-1	CF
Switching of the neutral electrode	Floating output
Monitoring of single-surface neutral electrodes	Auto. monitoring of the electric connection between the neutral electrode and high-frequency surgical unit
Monitoring of dual-surface neutral electrodes	Automatic monitoring a) of the electric connection between the neutral electrode and high-frequency surgical unit. b) of the electric compact resistance R <sub>ü</sub> between the two partial surfaces of the neutral electrode and patient.
Max. permissible contact resistance R <sub>ü</sub> between the two partial surfaces of divided neutral electrodes	260 ohm
Warning signals for activation and R <sub>ü</sub> > 260 ohms	Red signal lamp and acoustic signal lamp
Monitoring of output error	yes
Auto. limitation of max. HF power	Adjustable in 1 watt steps
Auto. limitation of the max. activation time	Yes, adjustable via test program no. 3
Auto. performance check	Self check after unit is switched on
Automatic error recognition	Yes
Automatic error message	Yes

<b>Classification according to EU directive 93/42/EEC</b>	
Class	IIb

<b>Automatic documentation</b>	
Automatic storage of operating errors	yes
Automatic storage of performance errors	yes
Automatic storage of safety errors	yes

<b>Power connection</b>	
Power voltage	100V/ 120V/ 230V/ 240V ±10%
Rated power frequency	50 / 60 Hz
Power consumption in Standby mode	4 watts
Power consumption at maximum HF power	200 watts (ICC 80) 100 watts (ICC 50)
Current consumption in Standby mode	approx. 20 mA
Max. current consumption at maximum HF power	approx. 2.0 A (ICC 80) approx. 1.0 A (ICC 50)
Potential equalization terminal	yes
Power fuses	T 2.0 A

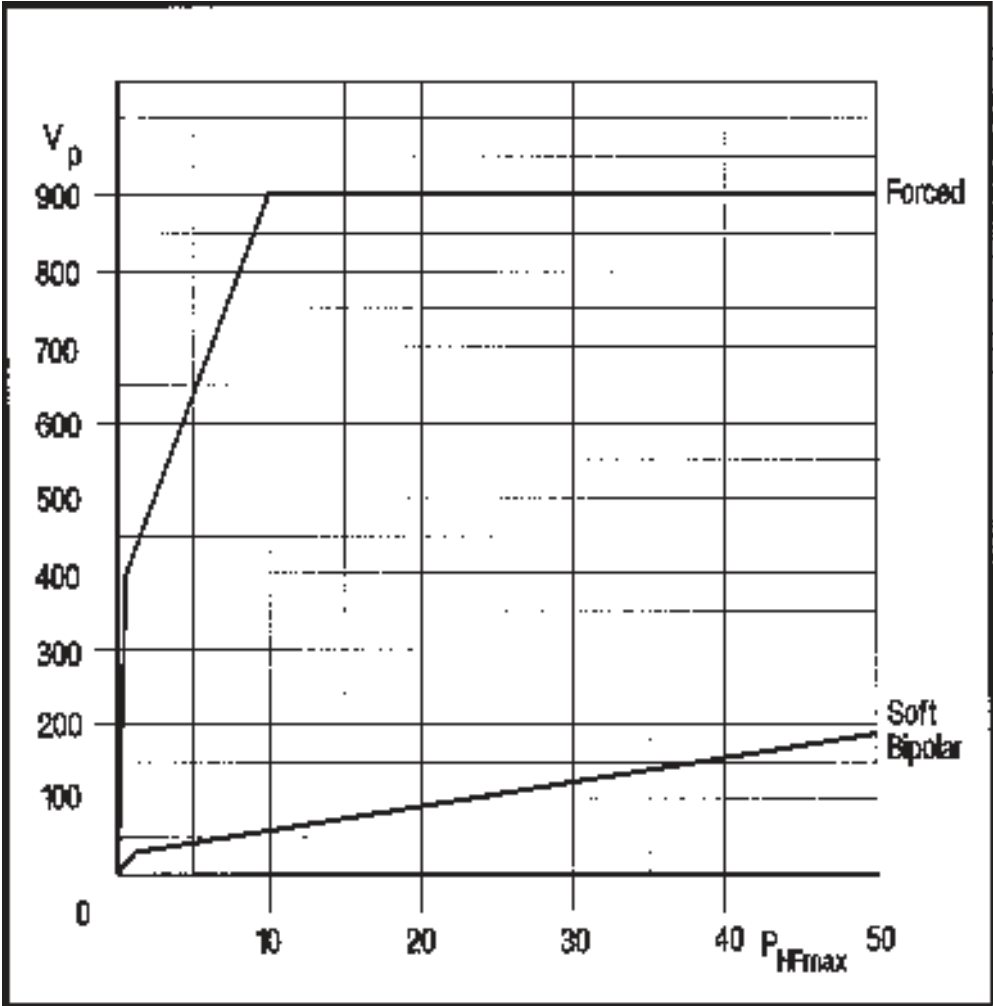
DIMENSIONS	
W x H x D	275 x 105 x 255 mm
Weight	2.8 kg

Environmental conditions for shipping and storage of the unit	
Temperature	-40°C to + 70°C
Air humidity, relative	30% to 95%

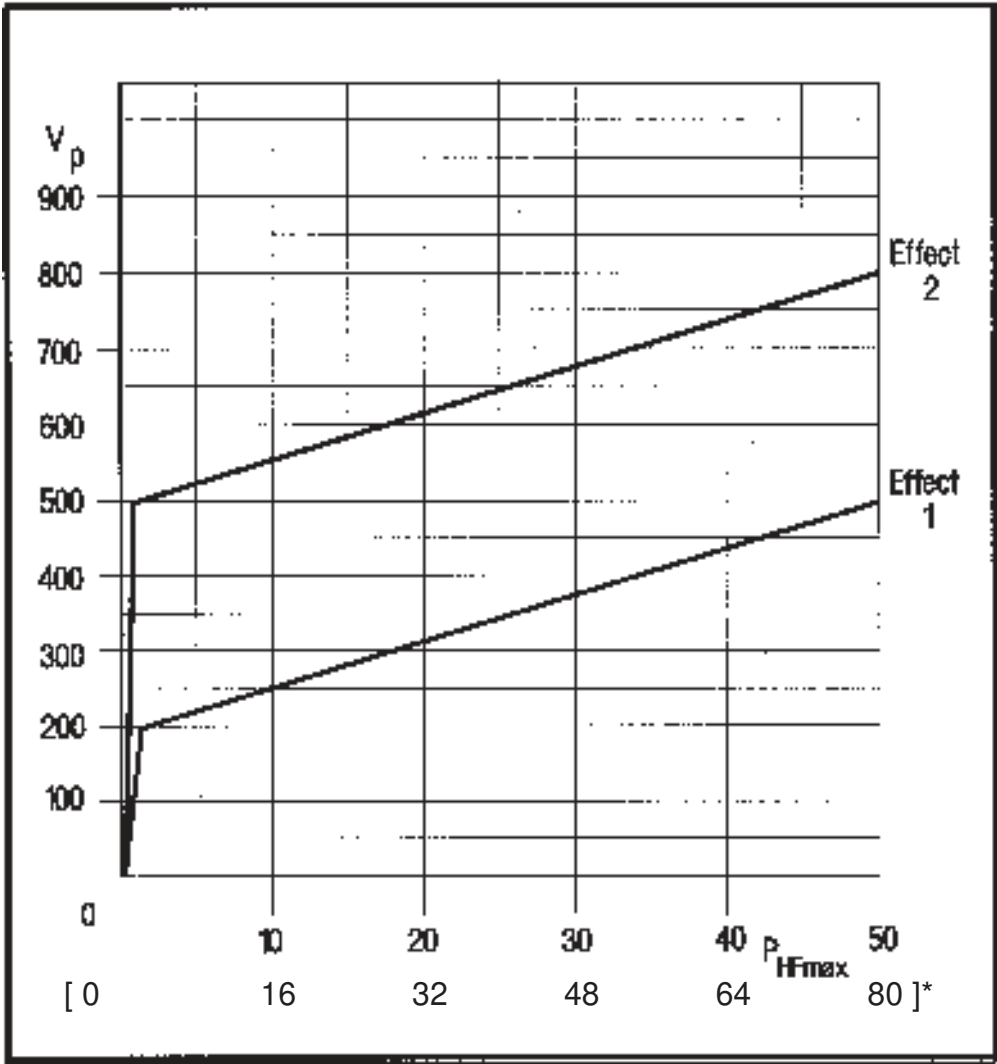
Environmental conditions for operation of the unit	
Temperature	+10°C to + 40°C
Air humidity, relative	30% to 75%, noncondensing

### 5.2 Diagrams

Peak value  $V_p$  of the HF output voltage in Soft and Forced coagulation mode as a function of the setting of the power limitation  $P_{max}$  with no load.

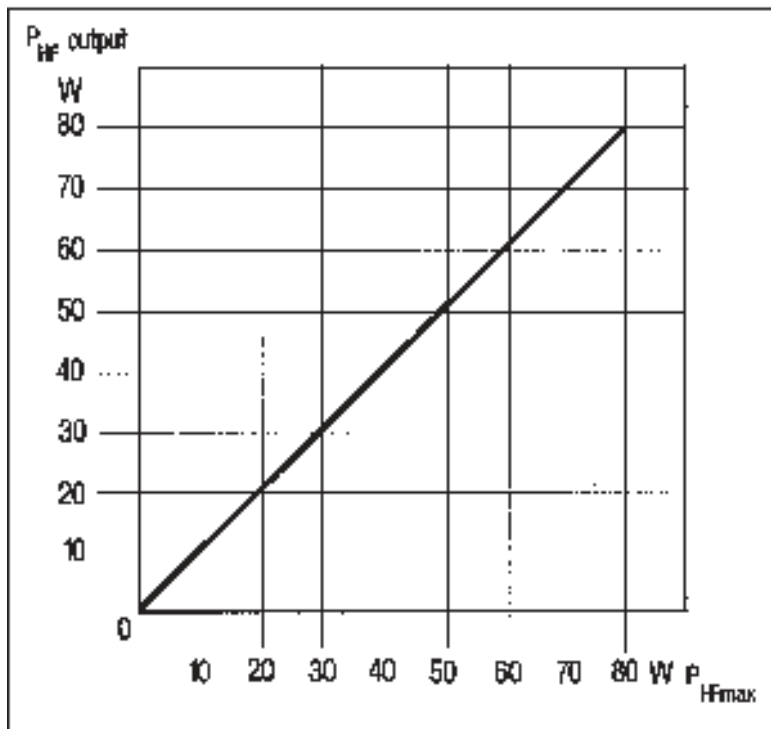


Peak value  $V_p$  of the HF output voltage in Cutting mode for Effect 1 and Effect 2 as a function of the setting of the power limitation  $P_{max}$  with no load.

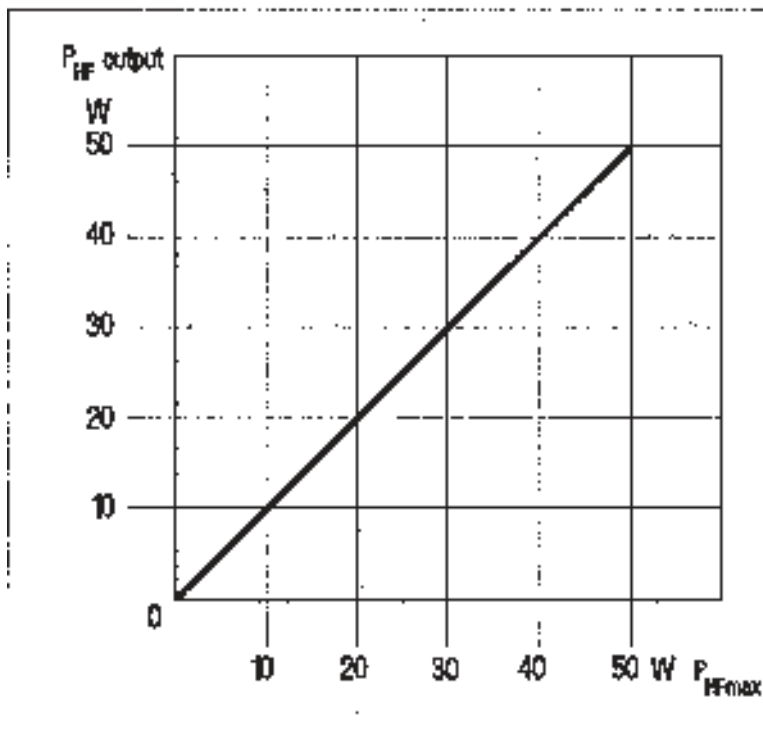


\* for ICC 80

The HF power output  $P_{HF\text{ output}}$  for all operating modes as a function of the setting of the power limiton  $P_{max}$ .



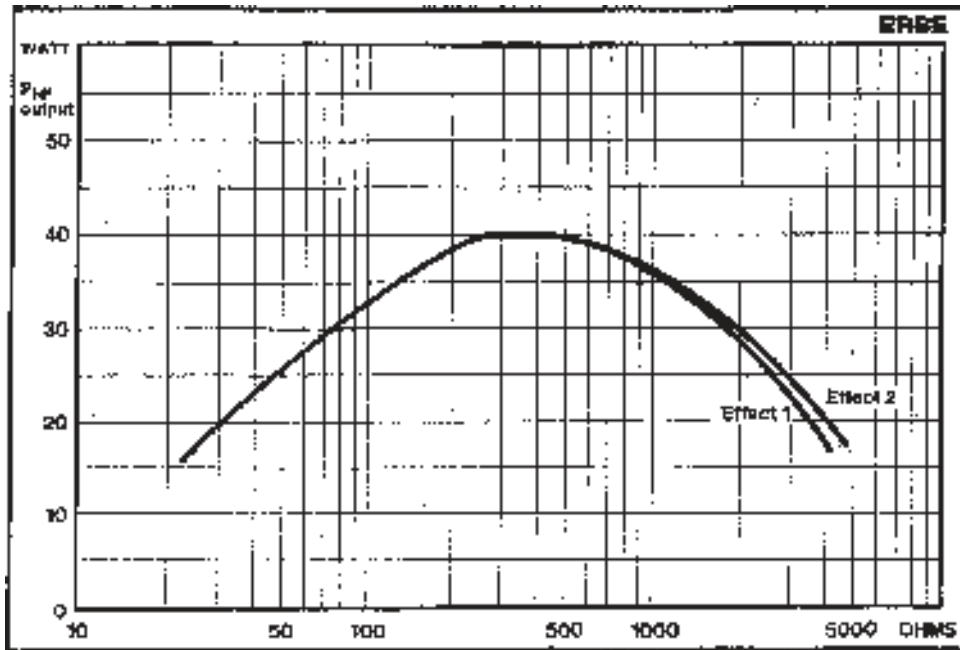
ICC 80



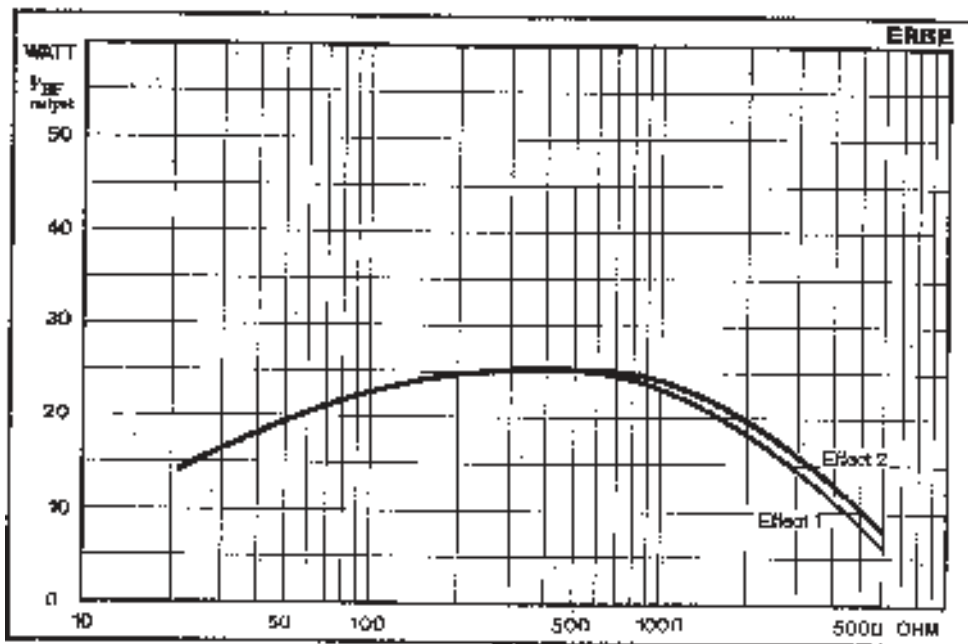
ICC 50

Cut Effect 1	At a load resistance of 500 $\Omega$
Cut Effect 2	At a load resistance of 500 $\Omega$
Forced Coag.	At a load resistance of 500 $\Omega$
Soft Coag.	At a load resistance of 200 $\Omega$
Bipolar Coag.	At a load resistance of 200 $\Omega$

The HF power output  $P_{HF\ output}$  in Cutting mode as a function of the load for Effect 1 and Effect 2 each at a set power limitation  $P_{max}$  of 40 watts (ICC 80), 25 watts (ICC 50)

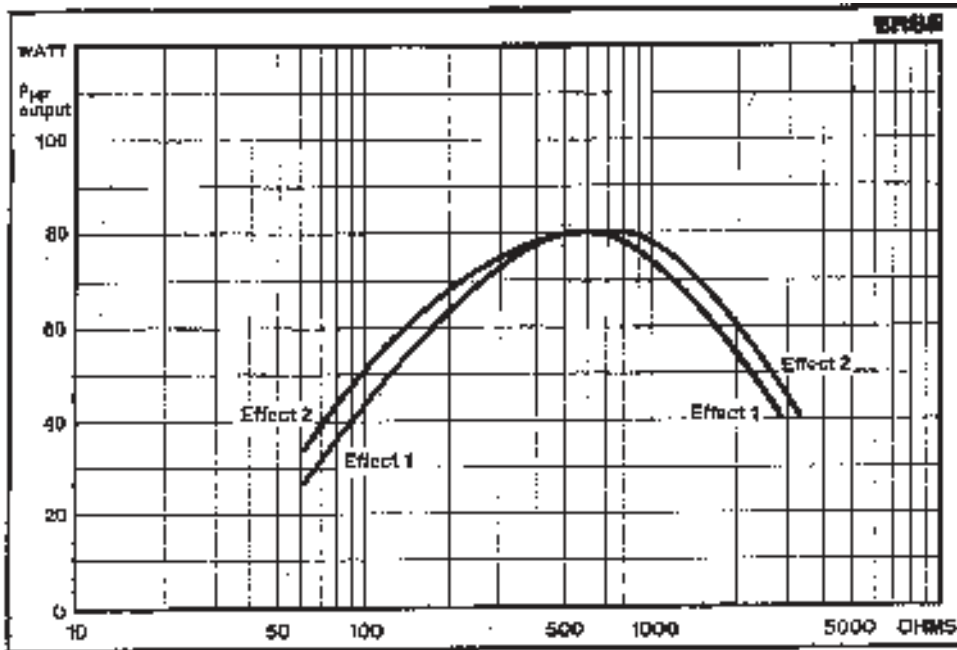


ICC 80

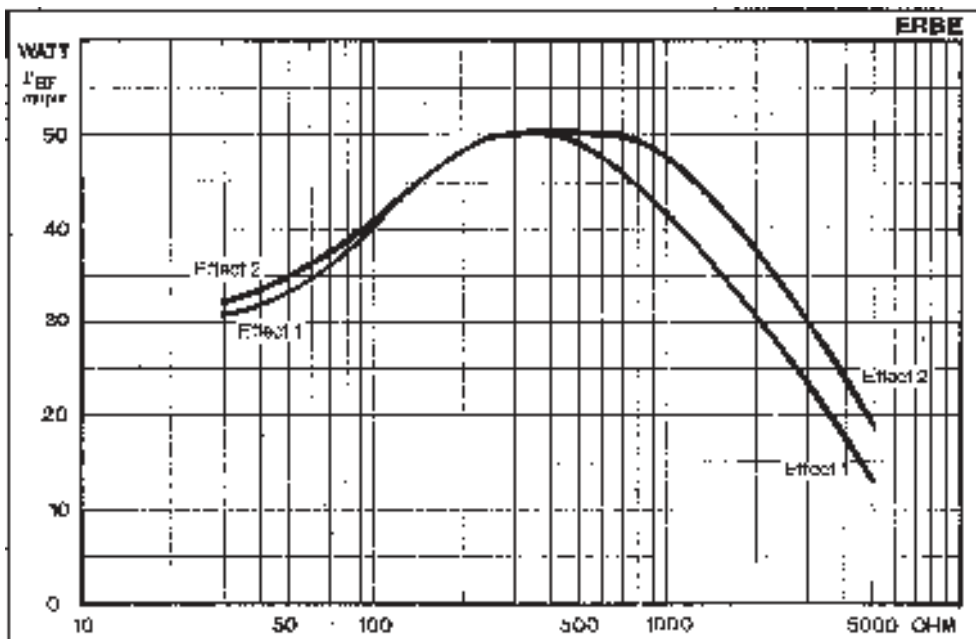


ICC 50

The HF power output  $P_{HF\ output}$  in Cutting mode as a function of the load for Effect 1 and Effect 2 each at a set power limitation  $P_{max}$  of 80 watts (ICC 80), 50 watts (ICC 50).

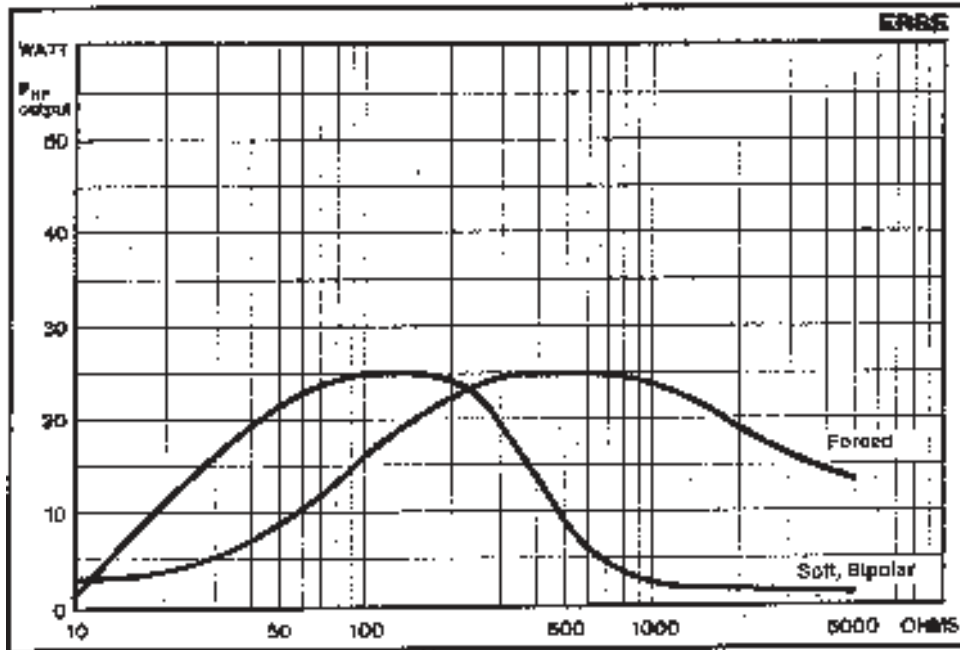


ICC 80

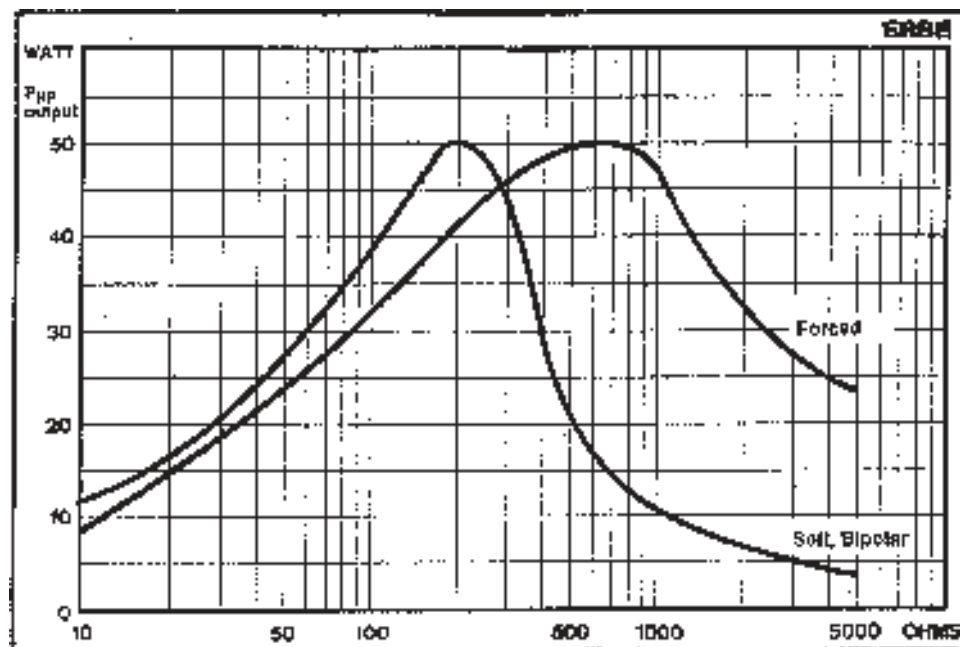


ICC 50

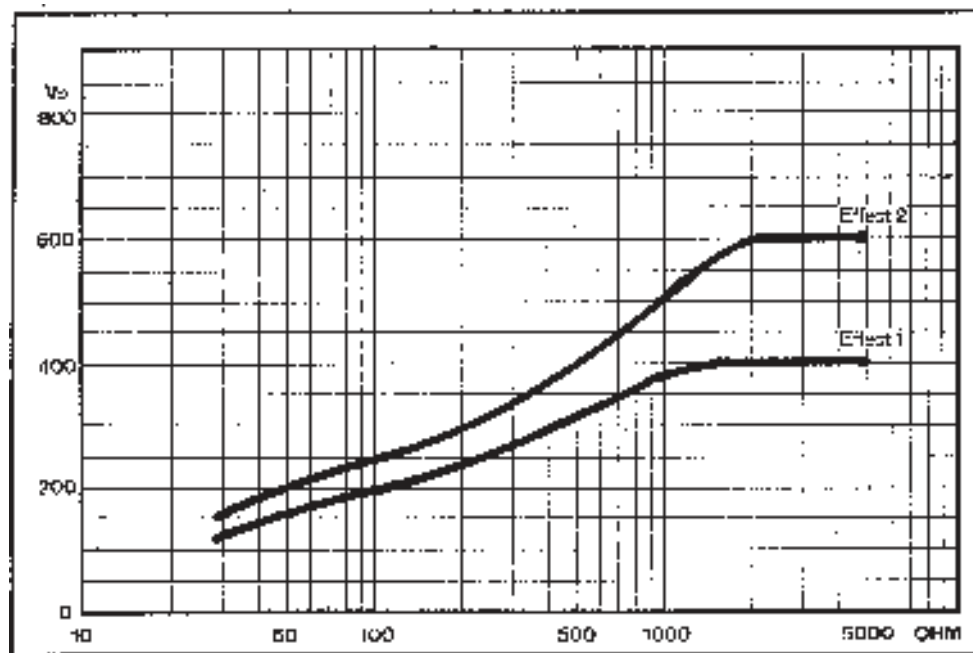
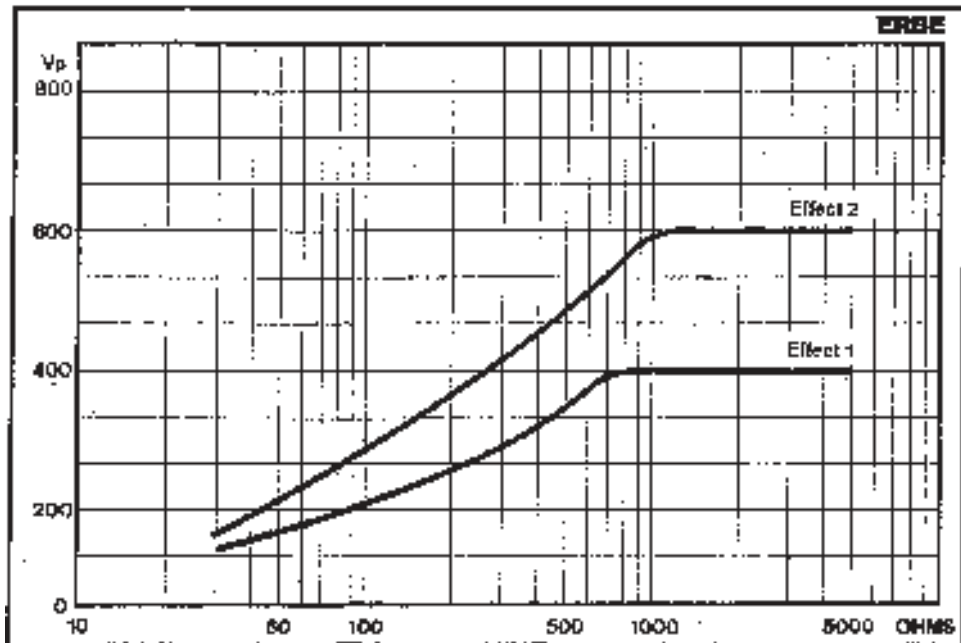
The HF power output  $P_{HF\ output}$  in Forced, Soft and Bipolar mode as a function of the load, each at a set power limitation  $P_{max}$  of 25 watts.



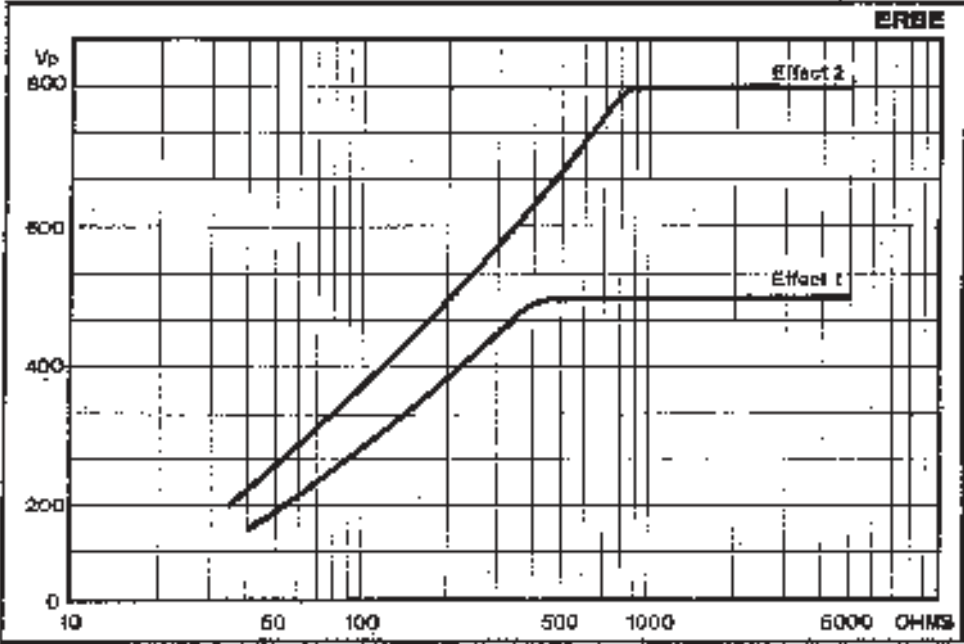
The HF power output  $P_{HF\ output}$  in Forced, Soft and Bipolar mode as a function of the load, each at a set power limitation  $P_{max}$  of 50 watts.



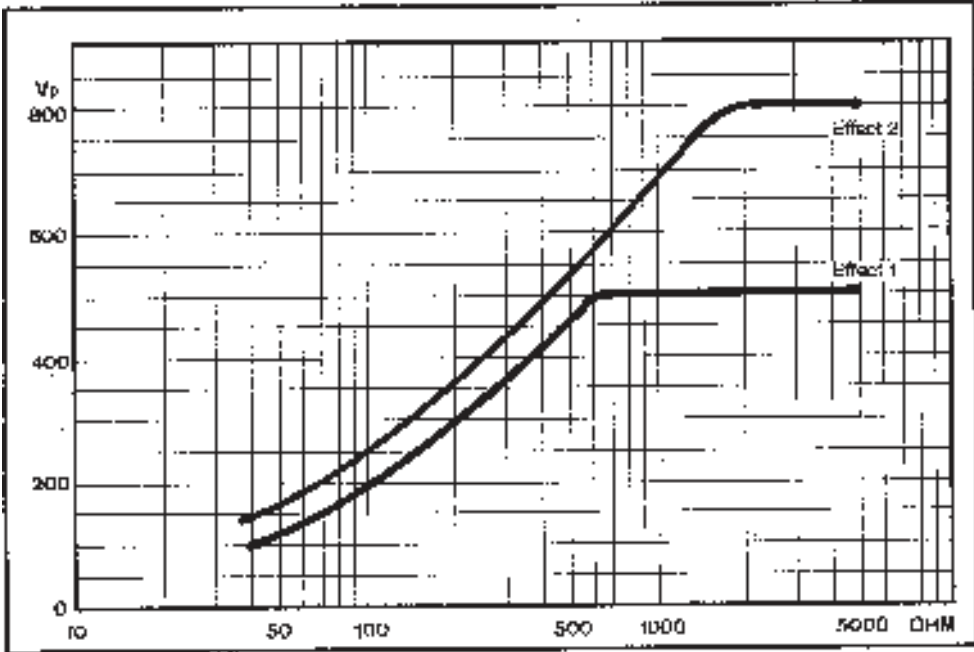
The peak value  $V_p$  of HF output voltage in Cutting mode each for Effect 1 and Effect 2 and at a setting of the power limitation to 40 watts (ICC 80) and 25 watts (ICC 50) as a function of the load.



The peak value  $V_p$  of the HF output voltage in Cutting mode each for Effect 1 and Effect 2 and at a setting of the power limitation to 80 watts (ICC 80 and 50 watts (ICC 50) as a function of the load.

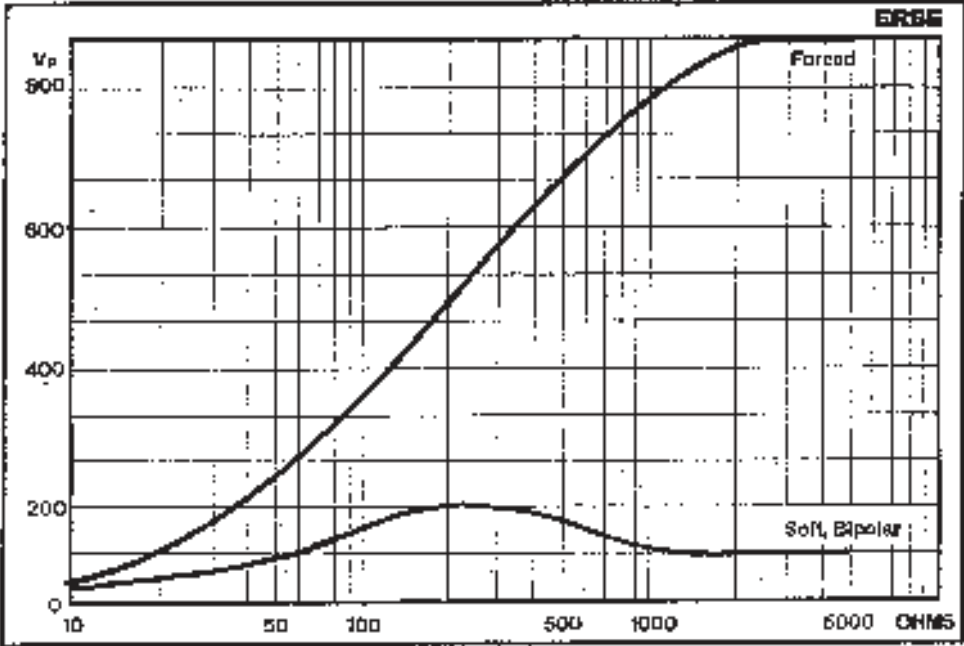


ICC 80



ICC 50

The peak value  $V_p$  of the HF output voltage in Soft, Bipolar and Forced coagulation mode, each at a setting of the power limitation to 25 watts as a function of the load.



The peak value  $V_p$  of the HF output voltage in Soft, Bipolar and Forced coagulation mode, each at a setting of the power limitation to 50 watts as a function of the load.

