

2.12. APPLICATION OF CONTACTLESS ELECTRIC DRIVES IN MEDICINE

2.12.1. SURGICAL SAGITTAL SAW



Surgical sagittal saw is designed for joint surgery. It contains a contactless magnetoelectric micromotor, a mechanism for converting a rotational motion of rotor into an oscillatory motion of the saw, and electronic control unit. Also it has mechanisms for adjusting a spatial position of the saw in two planes.

Supply voltage – 20 VA

Saw oscillation frequency – 0...300 Hz

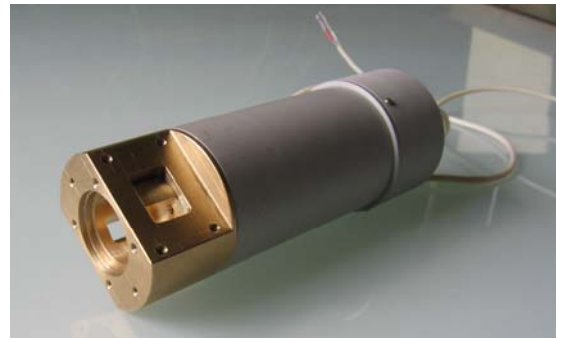
Saw oscillation amplitude – $\pm 2,5$ degrees

2.12.2. ADJUSTABLE AIR VALVE WITH MAGNETOELECTRIC DRIVE

It is intended for devices for forced ventilation of lungs. It contains a rotary-type shutter, a contactless micromotor and a programmable control unit. The frequency of valve opening corresponds to the frequency of inspiration-exhalation. A valve throughput is regulated by changing a rotation angle of the shutter with a resolution of 10 arc minutes.

Supply voltage – 12 V

Energy consumption – up to 18 VA.



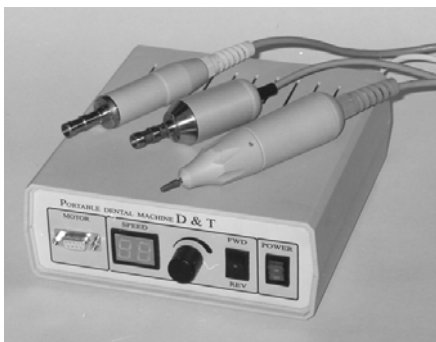
2.12.3. MICROMOTOR DRILL

(UA patent № 53776)

The drill contains a high-speed contactless micromotor, electronic control unit and moistureproof foot-operated push-button switch (IR31).

Dental drill «D&T-80» is intended for a dental work and for stone, metals, and ceramics processing, and for the use in jewelry. The drill micromotor has a collet mechanism for installing an alternating instrument with a standard landing diameter of 2.35 mm.

Dental drill «D&T-20» is intended for therapeutic procedures in dentistry. It can also be used for engraving and technical works. The drill micromotor is equipped with a device for installing standard straight or angle attachments of $\varnothing 9.86$ mm.



Main technical specifications:

Drill type	«D&T-80»	«D&T-20»
Supply voltage , Hz	220V, 50	220V, 50
Rotation frequency, rpm	3000...40000	3000...40000
Shaft capacity (max), W	100	21
Power consumption (max), VA	130	30
Shaft moment (max), Nm	238	50
Micromotor weight, kg	0,32	0,1