

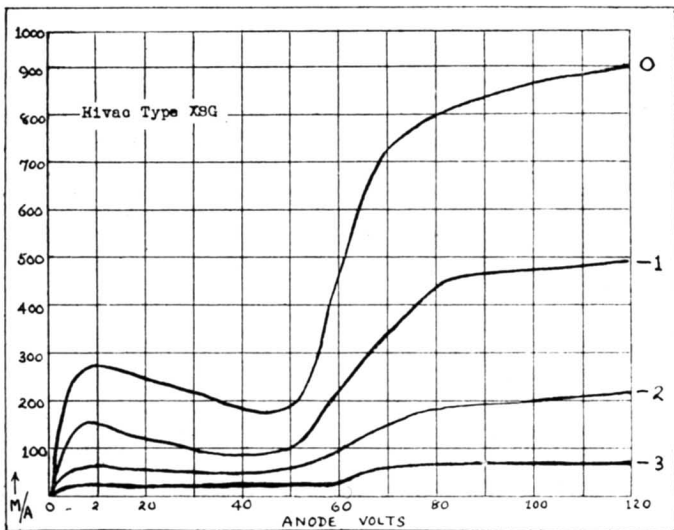
# NEW VALVES REVIEWED.

This month three new midget valves manufactured by the High Vacuum Valve Co. are reviewed.

## HIVAC MIDGET XSG.

This valve is a diminutive screened grid valve fitted with a Weeco type base, and a push-on standard size top cap. The overall dimensions are: length, 6.5 cms., max. diameter, 1.6 cms.

Characteristics.	Makers.	Measured Sample.
Filament volts ...	2.0	2.0
Filament current (amp.) ...	0.06	0.055
Anode volts (max.) ...	120	120
Screen volts (max.) ...	60	60
Amplification factor ...	360	470
Impedance ...	600,000	960,000
Mutual conductance ...	0.6	0.505
Inner Mu. ...	—	12
Inter-electrode capacity (mmf.) ...	0.02	not measured
Anode current (ma.) ...	—	0.9
Measured at anode volts 120, screen volts 60, grid volts, 0.		



The valve was tested in a normal 3-valve battery receiver and the gain was found to be +12db, actually higher than a normal screened grid, presumably due to the incidental reaction caused by the higher inter-electrode capacity. The valve was found to be entirely non-microphonic.

No curves were submitted by the makers, but our curves are shown herewith. They show that the valve would also make a very useful dynatron oscillator for wavemeters and the like, besides its main use as an economical and efficient R.F. amplifier for a small portable receiver.

## HIVAC MIDGET XD.

This valve is a diminutive triode rather smaller than a peanut valve, fitted with a Weeco base. The overall dimensions are: length 5.8 cms., and maximum diameter 1.6 cms.

Characteristics.	Makers.	Measured Sample.
Filament volts ...	2.0	2.0
Filament current (amp.) ...	0.06	0.05
Anode volts (max.) ...	100	100
Amplification factor ...	16	16
Impedance ...	27,000	29,000
Mutual conductance ...	0.6	0.55
Anode current (ma.) ...	—	2.4
Measured at anode volts 100; grid volts 0.		

The valve was tested in a 3-valve battery receiver as a leaky grid detector, and the gain was only -6 db. on a normal size triode. Reaction was in every way satisfactory, but the valve was found to be somewhat microphonic. No curves were submitted by the makers, so that our own curves are shown herewith.

## HIVAC MIDGET XL.

This valve is a triode similar in size to the XD, but having a lower impedance suitable for L.F. amplification.

Characteristics.	Makers.	Measured Sample.
Filament volts ...	2.0	2.0
Filament current (amp.) ...	0.06	0.052
Anode volts (max.) ...	100	100
Amplification factor ...	12	10
Impedance ...	14,000	13,000
Mutual conductance ...	0.85	0.7
Anode current (ma.) ...	—	3.5
Measured at anode volts, 100; grid volts, 0.		

The valve was tested in the receiver mentioned above at 100 volts and a grid bias of -3 volts. the anode current was 1.8 ma., quite a strong signal was produced on a small M.C. loud-speaker, and the valve was entirely non-microphonic. It would appear in every way suitable for its purpose; it would also be useful as an oscillator for wavemeters and the like.

## MAZDA ES501.

This valve was reviewed in the last issue as the ESW50. The valve has been recoded in the meantime, and the rated dissipation increased to 65 watts.

The inter-electrode capacities have been measured and the values are below:—

Grid-Anode ...	4.8 m.mf.
Grid-Filament ...	3.0 m.mf.
Anode-Filament ...	3.0 m.mf.

These figures are not guaranteed to a high order of accuracy, but are close enough for estimating neutralising capacity, etc.

The valve has been tested under ultra-short wave conditions, and the following figures were