APV

*products & processes*

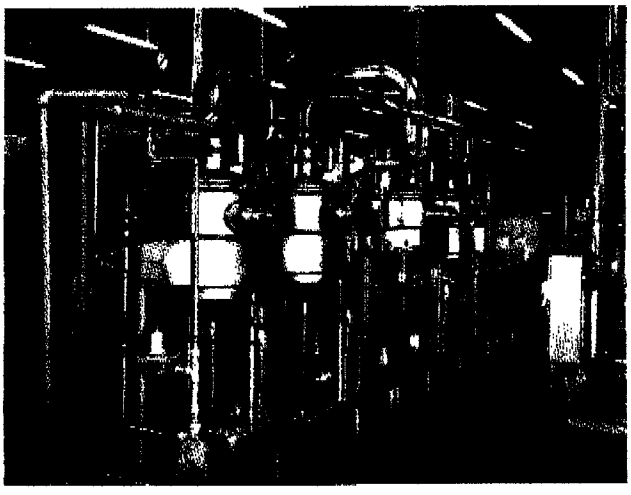
# the versatile APV 'Junior' size plate evaporator

The APV 'Junior' plate evaporator is designed for reliable, economical concentration of liquid food, pharmaceutical and chemical products during production runs, tests on new products, or as a finishing stage for high viscosity liquids.

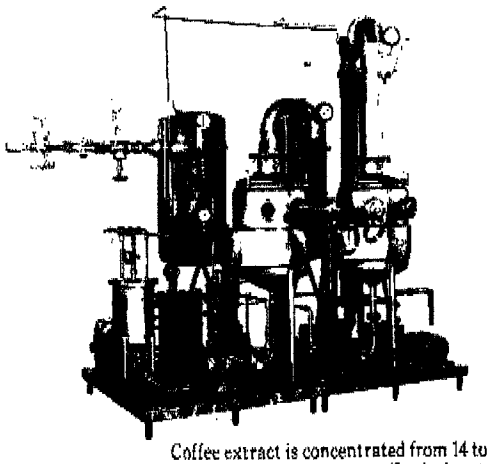
The 'Junior' unit is a scaled down version of the full size APV plate evaporator and is available in single or multiple effects to accommodate varying capacities or products. It easily concentrates heat sensitive liquids at evaporation rates from 100 to 2000 lbs/hr. The system combines a small rising/falling film plate evaporator and separator of either 304 or 316 stainless steel construction with all required auxiliary components: float-controlled balance tank with feed pump and piping, feed rotameter, stainless steel vapor ducting, a product extraction pump, surface condenser, condensate pump and piping, steam pressure controller and relief valve, a choice of mechanical vacuum pump or steam jet ejector, and the usual thermometers and pressure gauges. The entire, preassembled package is mounted on a sturdy mild steel base.

**economical/efficient/versatile**

Since the 'Junior' evaporator is a packaged system, substantial savings may be realized in capital investment, installation costs, operating labor, utilities and maintenance. The single effect system takes only 36 sq ft of floor space while the largest available multiple effect arrangement requires only 108 sq ft. All systems can be set up in less than 9' of overhead, need no special foundations, and do not require structural steel supports. Service requirements for the typical single effect system include 600 lbs/hr of steam and 60 gpm of water at 70°F. All systems can be cleaned in place with minimum use of steam and detergent.



Triple effect, four stage rising/falling film system concentrates 3084 lbs/hr of grape juice from 16°Brix to 54°Brix.



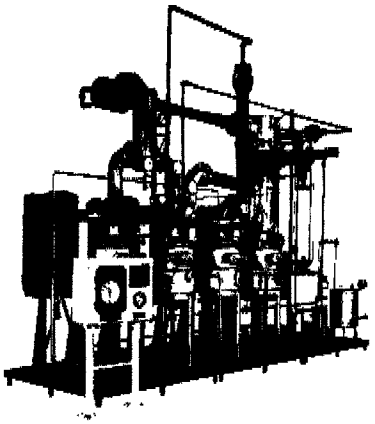
Coffee extract is concentrated from 14 to 55% solids in a double effect, two stage 'Junior' system.

From the viewpoint of efficiency, the plate evaporator couples ease of operation with extremely short heat contact time and rapid throughput which fully protects highly heat sensitive liquids from thermal degradation.

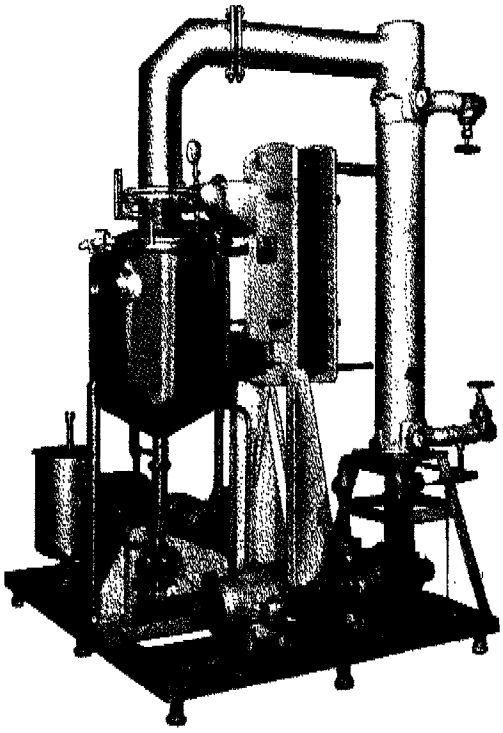
The unusual versatility of the system, meanwhile, permits the concentration of many products long considered difficult to handle because of viscosity or heat sensitivity.

Depending upon the number and arrangement of evaporator effects, typical concentrations in the 'Junior' evaporator include:

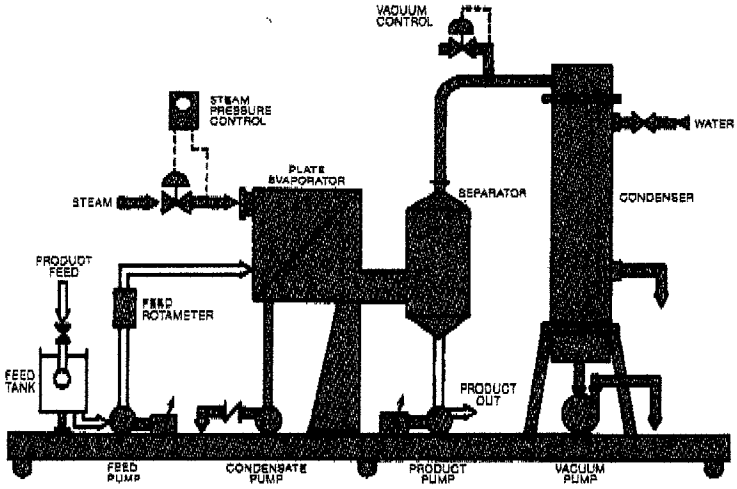
| | Feed Strength | Product Strength |
|---|---|---|
| apple juice | 10° Brix | 72° Brix |
| amino acids | 5% T.S. | 60% T.S. |
| gelatin | 2-6% T.S. | 25-50% T.S. |
| grape juice | 15° Brix | 72° Brix |
| pineapple | 12° Brix | 60-72° Brix |
| orange juice | 10° Brix | 60-72° Brix |
| lemon juice | 8% T.S. | 50% T.S. |
| distillery effluent | 5% T.S. | 50% T.S. |
| malt extract | 12% T.S. | 80% T.S. |
| corn steep liquor | 6% T.S. | 55% T.S. |
| monosodium glutamate | 20% T.S. | 60% T.S. |
| soup stock | 4% T.S. | 45% T.S. |
| coffee or tea | 4% T.S. | 40% T.S. |
| milk | 9% T.S. | 50% T.S. |
| yeast cream | 10% T.S. | 30% T.S. |



Preassembled double effect, four stage 'Junior' with thermo recompression uses low temperature operation to prevent heat damage to a penicillin type pharmaceutical product. Feed rate is 2052 lbs/hr with concentration from 5.5 to 22% solids.



TYPICAL PACKAGED SINGLE EFFECT 'JUNIOR' PLATE EVAPORATOR




Single effect unit of 3A design used for tests on whole milk and whey.

| SYSTEM | TYPICAL CAPACITIES | SPACE REQUIREMENTS |
|---|---|---|
| Single effect | up to 800 lbs/hr | 9' high 6'x 6' |
| Double effect | up to 1200 lbs/hr | 9' high 6'x12' |
| Triple effect | up to 1600 lbs/hr | 9' high 6'x18' |
| T/E with finisher | up to 1750 lbs/hr | 9' high 6'x24' |

TYPICAL SERVICE REQUIREMENTS
Single effect: steam—600 lbs/hr water—60 gpm at 70°F
electric—7 HP

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