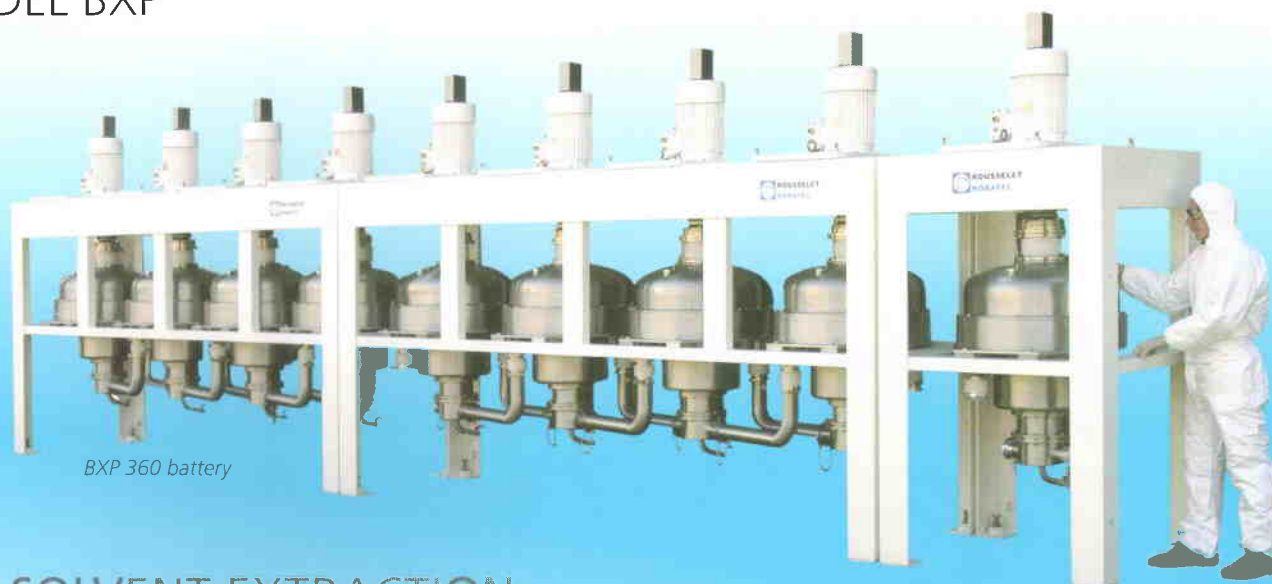
ROUSSELET ROBATEL

MONOSTAGE LIQUID/LIQUID CENTRIFUGAL CONTACTORS

MODEL BXP



BXP 360 battery

FOR **SOLVENT EXTRACTION** OR **LIQUID / LIQUID SEPARATION**

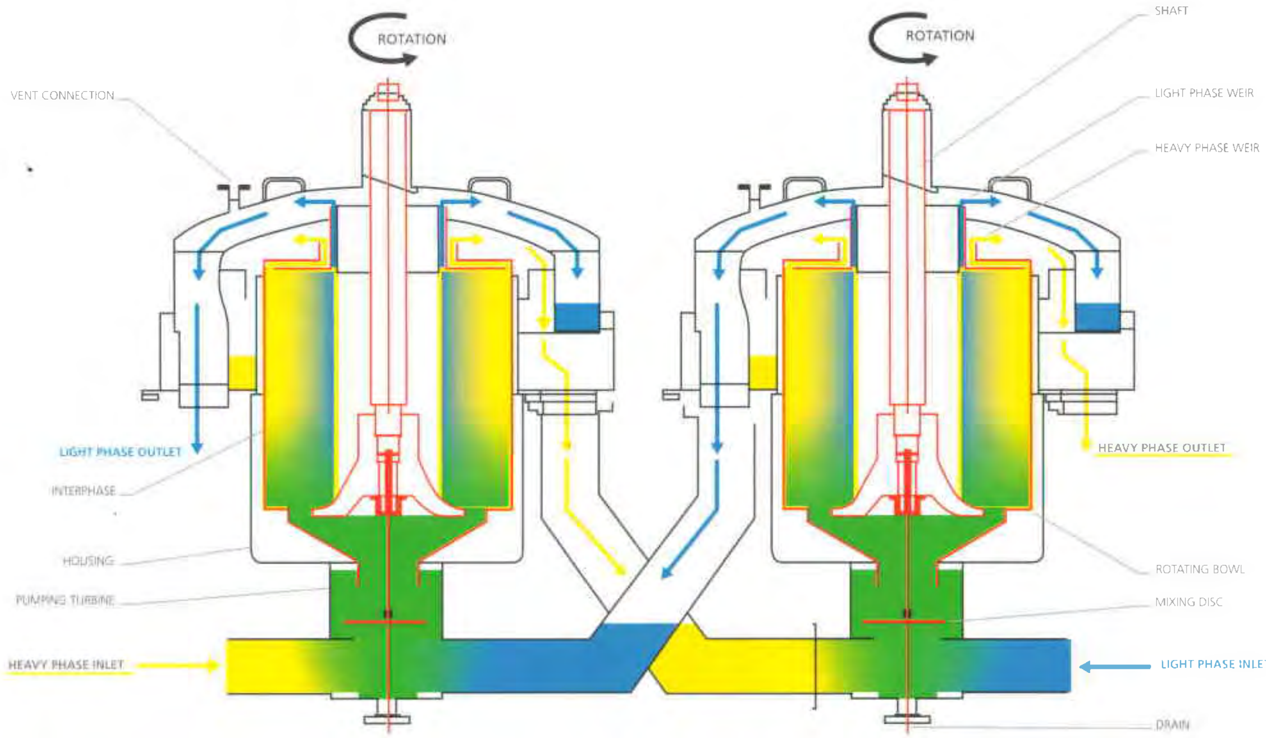
TYPES OF APPLICATIONS:

- → PHARMACEUTICALS: Purification of active principles (e.g. Antibiotics).
- → CHEMICALS: Washing (example: polymers) or Extraction (e.g. Acetic acid).
- → FOOD INDUSTRY: Purification of food components (e.g. Lactic and Citric acids)
- → HYDROMETALLURGY: Separation or purification (e.g. Precious metals)
- → VARIOUS INDUSTRIES: PERFUMES, AROMAS, ESSENTIAL OILS, ...

COMMON FEATURES OF **ROUSSELET ROBATEL** CENTRIFUGAL EXTRACTORS AND SEPARATORS:

- → Direct motor coupling to the main shaft.
- → No bottom bearing in process area.
- → Unique all-fluoropolymer construction for corrosive applications.
- → Optional CIP systems for cGMP applications.
- → Optional pharmaceutical grade polishing.
- → Centrifuges perfectly adapted to both batch and continuous operations.
- → Short retention time and low liquid hold-up.
- → Efficient phase separation utilizing centrifugal force
- → Various agitator designs to accommodate a wide range of solvent systems
- → Low mix turbines for shear sensitive applications.
- → Unattended operation.
- → High throughputs achieved in compact unit.
- → High extraction efficiency due to thorough mixing.
- → Each extractor nearly corresponds to a theoretical extraction stage.
- → Rapid operational equilibrium
- → Internal recycling of heavy or light liquid phase.
- → Can serve as liquid/liquid separator and/or liquid/liquid extractor.
- → Possibility to connect several BXP in series (no inter-stage pumps required) to achieve the required number of stages.

EXTRACTION CONFIGURATION



2 stage battery for counter-current extraction

OPERATING PRINCIPLE:

When operating as a centrifugal extractor for performing liquid/liquid extractions, a feed solution, containing one or more solutes (shown in yellow), and an immiscible solvent (shown in blue) with a different density than that of the feed solution are fed to the mixing chamber located on the bottom of the centrifuge housing.

A rotating agitator disc mixes the two immiscible liquids into a dispersion (shown in green). Different agitator disc designs can be used depending upon the liquids' interfacial tension. The efficient mixing creates a large interfacial area between the two liquids to ensure maximum mass transfer of the solutes.

The dispersion is aspirated into the centrifuge bowl by a turbine located on the bottom of the rotating bowl. The liquids are separated by the centrifugal force generated by the rotating bowl. The heavier liquid (shown in yellow) occupies the outer portion of the bowl. The light liquid (shown in blue) occupies the inner portion of the bowl. The position of the liquid/liquid interphase is regulated by a heavy phase weir. Interchangeable heavy phase weirs of different diameters accommodate a wide range of density ratios. The heavy phase underflows to a static receiving chamber. The light phase overflows to a separate static receiving chamber.

The liquids are discharged by gravity to the next BXP centrifugal extractor or to downstream equipment. For multi-stage extraction processes, BXP centrifugal extractors can be installed in series to provide the required number of stages. No inter-stage pumps are required between the extractors.

The external inter-stage piping allows liquids to be fed into or routed out of the extraction process (main extraction, scrubbing, back extraction) as required for optimum flexibility.

BXP 040

SEPARATION CONFIGURATION

BXP 520 battery

OPERATING PRINCIPLE:

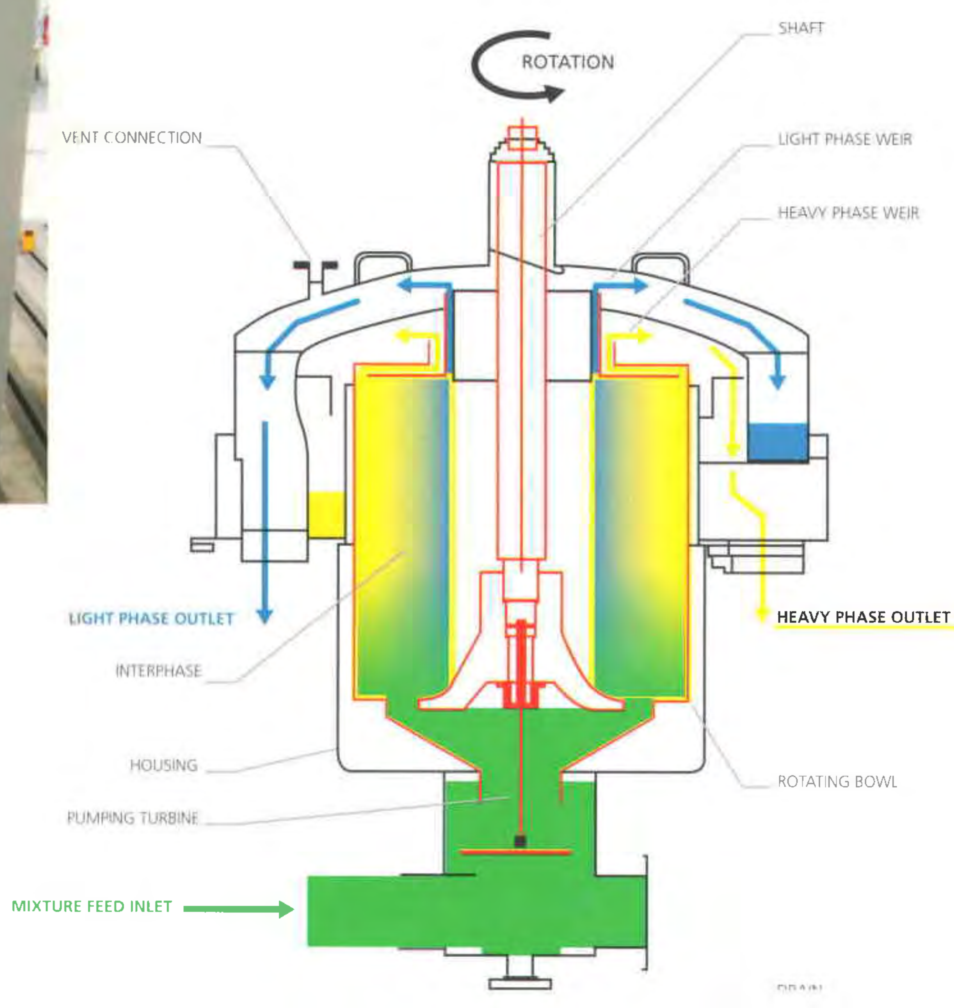
When operating as a liquid/liquid centrifugal separator, a mixture of two immiscible liquids (shown in green) with different densities is fed to the pumping chamber located on the bottom of the centrifuge housing.

The liquid/liquid mixture is aspirated into the centrifuge bowl by a pumping turbine located on the bottom of the rotating bowl. The liquids are separated by the centrifugal force generated by the rotating bowl. The heavier liquid (shown in yellow) occupies the outer portion of the bowl. The lighter liquid (shown in blue) occupies the inner portion of the bowl.

The position of the liquid/liquid interphase is regulated by a heavy phase weir. Interchangeable heavy phase weirs of different diameters accommodate a wide range of density ratios. The heavy phase underflows to a static receiving chamber. The light phase overflows to a separate static receiving chamber.
The liquids are discharged by gravity to downstream equipment

BXP 130P battery

BXP 360



METALLIC CONSTRUCTION:

ROUSSELET ROBATEL liquid/liquid centrifuges can be fabricated from a variety of alloys such as 316L,stainless steel, 904L stainless steel, Hastelloy C and other materials of construction (upon request, and upon mechanical compatibility). If used as extractors, these machines can be installed on single or common frames and are interconnected with flexible inter-stage piping.

MONOSTAGE CENTRIFUGES FABRICATED FROM METAL.										
	Bowl				Centrifuge					
Model	Ø (mm)	Useful capacity (l)	Rotor speed (RPM) 50 Hz	Rotor speed (RPM) 60 Hz	Nominal flow rate (l/h) 50 Hz	Nominal flow rate (l/h) 60Hz	Motor power (kW) 50 Hz	Motor power (kW) 60 Hz	Dimensions (mm) h	Dimensions (mm) l
BXP040	40	0,11	3000	3600	50	60	0,020	0,020	487	180
BXP080	80	0,30	3000	3600	120	140	0,12	0,12	570	380
BXP190	190	4,2	2900	3500	3000	3500	0,75	1,1	1300	550
BXP320	320	17	2900	3500	6000	7000	4	5,5	1550	940
BXP360	360	29	2900	3500	10000	12000	5,5	5,5	1850	1040
BXP520	520	110	1450	1750	25000	30000	7,5	7,5	2310	1330
BXP800	800	320	970	870	60000/80000	55000/75000	18,5	18,5	3110	1750
The hourly flowrates depend upon the viscosity, emulsification tendency, density ratio and the flow ratio of the liquids being processed.										

PVDF CONSTRUCTION:

Unique construction in which all process contact surfaces are fabricated from PVDF. This construction is advantageous if the process materials are corrosive and it is not possible to use metallic construction. If used as extractors, these machines can be installed on single or common frames and are interconnected with flexible inter-stage piping.

MONOSTAGE CENTRIFUGES FABRICATED FROM PVDF.										
	Bowl				Centrifuge					
Model	Ø (mm)	Useful capacity (l)	Rotor speed (RPM) 50 Hz	Rotor speed (RPM) 60 Hz	Nominal flow rate (l/h) 50 Hz	Nominal flow rate (l/h) 60Hz	Motor power (kW) 50 Hz	Motor power (kW) 60 Hz	Dimensions (mm) h	Dimensions (mm) l
BXP040P	40	0,11	3000	3600	50	60	0,02	0,02	575	150
BXP130P	135	1,3	1450	1750	600	700	0,25	0,37	900	320
BXP130PL	135	1,9	1450	1750	850	1000	0,25	0,37	970	320
BXP210P	210	5,6	1450	1750	3000	3500	0,75	0,75	1300	550
BXP210PL	210	7,8	1450	1750	4200	4800	0,75	0,75	1400	550
BXP360P	360	29	970	1170	12000	14000	1,5	2,2	1910	1140
BXP360PL	360	39	970	1170	16000	18000	1,5	2,2	2060	1140
BXP460P	460	80	730	870	25000	28000	2,2	3,6	2210	1250
BXP620P	620	175	580	580	60000	60000	3,6	3,6	2900	1500
The hourly flowrates depend upon the viscosity, emulsification tendency, density ratio and the flow ratio of the liquids being processed.										

LABORATORY MODELS:

For performing feasibility tests with minimum quantities of material.

BXP 012 battery

LABORATORY MONOSTAGE CENTRIFUGES (Metallic construction only)							
	Bowl			Centrifuge			
Model	Ø (mm)	Useful Capacity (l)	Rotor speed (RPM)	Nominal flow rate (l/h)	Motor power (W)	Dimensions (mm) h	Dimensions (mm) l
BXP012	12	0,0022	10000	2	25	295	100
BXP025	25	0,0190	4000	10	41	482	170
The hourly flowrates depend upon the viscosity, emulsification tendency, density ratio and the flow ratio of the liquids being processed.							

ROUSSELET CENTRIFUGATION SA

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