

# Manufacturing Equipment for drug development



Production Step	Machine Type	Description	Batch size	GMP / non GMP	Site
Mixing/Granulating	High shear mixer	Diosna P1-6/P1-25	0.5-10 kg	GMP	Appenweier
Mixing/Granulating/Vacuum drying	High shear mixer	Somakon	0.2 - 10 kg	GMP	Frankfurt
Mixing	Tumble mixer	Mixomat A 20, Fuchs	0.5-10 kg	GMP	Appenweier
Mixing	Tumble mixer	Bohle container mixer	5, 20, 40 L	GMP	Frankfurt
Sieving	Sieving machine	Quadro® Comil® U3	Up to 10 kg	GMP	Frankfurt
Sieving	Sieving machine	Quadro® Comil® U5	Up to 70 kg/h	GMP	Appenweier
Sieving/classifying	Sieving machine	Sweco S18S	Up to 50 kg/h	GMP	Appenweier
Compressing/Extruding	Flat die press	Kahl 14-175	Up to 75 kg	GMP	Appenweier
Compacting	Dry granulator	Erweka AR 400 E	0.5-3 kg	Non-GMP	Appenweier
Granulation/Drying	Fluid bed granulator	Strea 1	0.2-2 kg	GMP	Appenweier
Tabletting	Rotary press	Riva Piccola 10 EU B	max. 30,000 pcs./h	GMP	Appenweier
Tabletting	Rotary press	Korsch XL 100 EU D	max. 86,400 pcs./h	GMP	Appenweier
Tabletting	Rotary press in isolator for high potent APIs	Korsch XL 100	max. 60.000 pcs./h	GMP	Frankfurt
Filling of hard capsules	Automatic capsule filling machine	Bonapace IN-CAP XL	max. 3000 pcs./h	GMP	Appenweier/ Frankfurt
Granulation/Drying/Coating	Fluid bed granulator/coater	Romaco Innojet Ventilus®	0.5-2.5 kg	GMP	Appenweier/ Frankfurt
Coating (also for high potent drugs)	Drum coater	ProCept	5, 10 L drum	GMP	Frankfurt (in planning)
Granulation	Dry granulator	Erweka TG2S	max. 21 kg/h	GMP	Appenweier
Granulation	Wet Granulator	Erweka FGS	max. 30 kg/h	GMP	Appenweier
Coating	Pan coater	Stechel ADG 50	2.5-5 kg	GMP	Appenweier
Drying	Tray dryer	Memmert drying cabin	Up to 2kg	GMP	Frankfurt
Drying	Vacuum drying oven	Vacutherm® VT 6130 M-BL	--	Non GMP	Appenweier

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Dedusting	Dedusting of tablets and capsules	Pharmaproject	Up to 25.000 pcs/h	GMP	Frankfurt
Weight Control	Weight control	Sade	Up to ??? pcs/h	GMP	Frankfurt
Drying/Lyophilisation	Freeze dryer	Christ Epsilon 2-6D LSCplus	--	Non GMP	Frankfurt
Homogenisation	High pressure homogenisation	Emulsiflex-C3	--	Non GMP	Frankfurt
Wet ball milling	Dual centrifuge/ball mill with integrated cooling system	DeltaVita 1 (Netzsch)	(40 samples with max. 2 ml)	Non GMP	Frankfurt
Wet ball milling	Wet ball mill incl. 10L container and master flex pump	Dispermat SL50-Nano (Fa. Getzmann)	1 – 10 L	GMP	Frankfurt
Autoclaving/ terminal sterilisation	Autoclave	Systec DB-23	--	Non GMP	Frankfurt
Working with API up to OEL 3b	Safety working bench	WiboBarrier® Vertical Plus	--	GMP (ISO 5)	Appenweier
Multiple Isolator Containment Systems for handling of APIs up to OEL 5	Isolators	ART	--	GMP	Frankfurt
4 Laminar flow areas	Laminar flow	Bleymehl	--	GMP (ISO 5)	Frankfurt
Laminar flow working bench	Laminar flow	--	--		Frankfurt
Blistering	Semi-automatic sealing of PVC/Alu; PVC-PVDC/Alu; Alu-Alu	Maxi-Pack	max. 100 pcs./h	GMP	Appenweier
Printing/Serialisation	Serialisation machine	WIPOTEC-OCS	max. 60 pcs./min	GMP	Appenweier
Labelling/printing of batch data	Labelling machine/printer	HERMA 211 S	max. 20 pcs./min	GMP	Appenweier

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Mixing (for parenteral solutions, suspensions)	Several stainless steel double jacket vessels with 10, 20, 25, 60, 100 L	Diessel, Plantech	--	GMP	Frankfurt
Cross flow double jacket stainless steel system	Up to 20L (to remove organic solvents after precipitation without agglomeration of particles)	Plantech	Depending on process	GMP	Frankfurt
Cooling systems	Cooling systems	Lambda	--	GMP	Frankfurt
Half automatic filling system	Filling of solutions & suspensions	Base	0.5 – 28 ml	GMP	Frankfurt
Transfer of material under containment	Stainless steel split valves	Andocksystems	--	GMP	Frankfurt
Dust cleaner for high potent drugs with HEP filters	Removal of dust e.g. during compression	Krahnen	--	--	Frankfurt
Coating	(Sugar) Coating pan	Walter Brucks VIII GM1	max. 75 kg	GMP	Appenweier
Coating	(Sugar) Coating pan	Walter Brucks 130 SG-SC	max. 130 kg	GMP	Appenweier
Weighing	Multi Purpose Flex-Isolator	Solo Containment P13467	--	GMP	Appenweier
Printing	Thermotransfer printer	Sato CL408e	max. 3000 pcs./h	GMP	Appenweier