

HONKAI EQUIPMENT OVERVIEW				Initial & Early Development			Late stage	
Location on-site	Detailed location	Activity or Equipment Overview	Further Detail	Process Development	Analytical Development	Pre-clinical to Phase I/II	Phase III	Commercial
Process/Analytical R&D Labs	Process Development	Organic Synthesis Development	Glass reactors (up to 30 L), -90°C to +150°C	•		•		
			High Pressure Capabilities (up to 1 L) @10 bar	•		•		
		Safety Study	Optimax, DSC	•		•	•	•
		Containment Equipment	Glove box	•		•	•	•
	Monitoring	HPLC, LCMS, KF, GC, GC-HD, UPLC, NMR	•	•	•			
Analytical	Analytical Development	HPLC/UPLC (UV, MS, DAD), GC (FID, HD), NMR, LOD, KF, Titration, melting point	•	•	•			
Production	M2 Production Plant	Glass Lined Reactors	20 (from 200 L to 5,000 L, -20°C to +150°C)	•		•	•	•
		Stainless steel 316 Reactors	9 (from 500 L to 5,000 L, -20°C to +200°C)	•		•	•	•
		Centrifuges	7 total: SS, 600 mm; Halar coated, 1,050 mm + 1,250 mm; HC22Alloy, 1,050 mm (2); Titanium, 1,250 mm (2)	•		•	•	•
		Press Filter Dryer	3 X Filter Dryers: SS, 3,400 L (1,800mm), Hastelloy, 3,400 L (1800mm); Hastelloy, 200 L (600mm)	•		•	•	•
		Other dryers	3 X Double cone dryers: SS, 2,000 L	•		•	•	•
		Milling/Blending	Cone miller	•		•	•	•
		Containment Equipment	Glove box, Powder Transfer System, Continuous liner	•		•	•	•
		Cryogenic capabilities	-80°C direct liquid nitrogen in jacket; -30 °C direct refrigeration	•		•	•	•
		Temperature range & vacuum	From -80°C to 240°C, full-vacuum to 40 bar	•		•	•	•
Production	M3 Production Plant	Glass Lined Reactors	12 (from 3,000 L to 10,000 L, -19°C to +200°C)	•		•	•	•
		Stainless steel 316 Reactors	7 (from 3,000 L to 10,000 L, -19°C to +200°C)	•		•	•	•
		Hydrogenation	SS 2,000 L (20°C to +200°C, 0 to 40 bar) Hastelloy 670 L (20°C to +200°C, 0 to 40 bar)	•		•	•	•
		Centrifuges	4 total: SS (3) 1,250 mm (2) + 1,050 mm; Halar coated, 1,050 mm	•		•	•	•
		Press Filter Dryer	3 total: SS, 3,400 L (1,800 mm) + 2,100 L (1,400 mm); Hastelloy, 3,400 L (1,800 mm)	•		•	•	•
		Other dryers	Single cone (2): SS, 3,000 L + Hastelloy 3,000 L; Paddle: SS, 2,000 L; Box: SS, 1,400 L	•		•	•	•
		Milling/Blending	Screening, hammer miller with temp. control	•		•	•	•
		Containment Equipment	Glove box, DCS, Continuous liner	•		•	•	•
		Cryogenic capabilities	-80°C direct liquid nitrogen in jacket; -15 °C direct refrigeration	•		•	•	•
Temperature range & vacuum	From -80°C to 150°C, full-vacuum to 40 bar	•		•	•	•		
QC	Analytical	Analytical Equipment	HPLCs (UV, DAD), UPLC, GC (FID), GC-MS, FTIR, Titrator, KF, Polarimeter, UV-VIS, Melting Point, Thermobalance, IC	•	•	•	•	•