

General					Thruster							Supports				ISRU		Freighter		Bernal	Colony	Colonists			Notes	
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	ISRU	Type	Load limit	Factory load only	Power stat	Promoted colony	Type	Specialty	Ideology	Ability / Future	
Thruster TW	Dusty Plasma	V	2	8	2	0			9						(3)							S				(F) MASS BEAM FUTURE: Req = Promoted Bernal with Io or Triton Dirtsides. Effects = your Powersat adds +2 thrust, 7 VP.
Thruster GW	Mini-Mag Orion Z-Pinch Fission	M	1	9	12	1/3								(-+)	(2)							D				
Thruster TW	Solem Medusa Tugged Orion	M	6	9	9	0			3					(-+)								D				(F) LITHIATED AMMONIA ICE STARSHIP FUTURE: Req = Ad astra exit with 10 isotope fuel. Effect = 14 VP.
Thruster GW	Salt-Water Zubrin	S	1	6	14	1/2			1						(5)							M				
Thruster TW	Zubrin-GDM	S	3	8	6	0			8					(-+)	(4)							M				(F) SPACEFARING FUTURE: Req = Bernal with 8+ dirtside hydration. Effects = Allowed 1 extra Colonist, 7 VP.
Thruster GW	Spheromak 3He-D Magnetic Fusion	H	4	8	6	1/10			6					(e)	(4)							H				
Thruster TW	Colliding FRC 3He-D Fusion	H	3	9	4	0			10				(ANY)	(-+)	(2)							H				(F) ENZMANN STARSHIP FUTURE: Req = Ad astra exit with 2 Promoted Colonists + Mobile Factory. Effect = 12 VP.
Thruster GW	VISTA D-T Inertial Fusion	H	5	8	9	1/4			3					(-+)	(2)							H				
Thruster TW	Daedalus 3He-D Inertial Fusion	H	5	9	11	0			8					(-+)	(3)							H				(F) FUSION CANDLE FUTURE: Req = Triton Colony & Promoted Bernal with Neptune Aerostat Dirtsides. Effects = double all isotope refuel, 14 VP.
Freighter	Fission-Heated Steam	Any	0	5									(~)					2				M				
Freighter Fleet	Fission GCR	Any	1	6									(~)					6				M				(A) Can liftoff/land on Sites that are less than size 6 without factory-assist. (F) EXOPLANET HUNT FUTURE: Req = Claim Sedna. Effect = (Endgame) 12 VP.
Freighter	Fusion Fragment Sail	V	2	1				1										2				M				(A) Immune to flares & radiation belts.
Freighter Fleet	Antiproton Sail and Harvester	V	2	9				4										6				M				(A) +1 net thrust if starting its move on a radiation belt. (F) ANTIMATTER FUTURE: Req = Promoted Bernal with S Dirtsides. Effects = double isotope refuel, 10 VP.
Freighter	HIIPER Beam Rider	V	4	4				1						(e)				4				▶				
Freighter Fleet	Magnetic Mirror Beam Rider	V	3	6				3						(e)				5				▶				(A) Can liftoff/land on Sites that are less than size 6 without factory-assist. (F) STAR WISP FUTURE: Req = Promoted Freighter (End game) at either neutrino sunlens (6 VP) or EM sunlens = 11 VP.
Freighter	Inflatable Solar-Heated	Any	0	5														2				C				(A) SOLAR HEATED: If not using Powersat, may move out only as far as the Ceres zone.
Freighter Fleet	Archimedes Palmer Lens	Any	0	10														5				C				(A) SOLAR HEATED: If not using Powersat, may move out only as far as the Jupiter zone. (F) TERRAFORM FUTURE: Req = Promoted Bernal at a non-Martian Atmospheric Dirtsides. Effect = 8 VP.
Freighter	Poodle Steam	Any	0	7														2				S				(A) RADIOISOTOPE: +2 thrust if its move starts on a Factory.
Freighter Fleet	D-Nanotube Dirt Launcher	Any	0	9														3				S				(F) BEANSTALK FUTURE: Req = 3+ Space Elevators built by any player. Effect (Endgame) = +3 VP for each Factory connected to a Space Elevator.
Freighter	Rotary Dirt Launcher	Any	5	4									(~)	(e)				2				C				
Freighter Fleet	KESTS Hoop Dirt Launcher	Any	15	8									(~)	(e)				15				C				(F) BEEHIVE ARK FUTURE: Req = Promoted Bernal anchored at a Synodic Comet. Effect = 7 VP.
Freighter	Z-Pinch D-T / 6Li Fusion	V	5	3				1					(X)	(-+)				3				H				
Freighter Fleet	Z-Pinch 3He-D Target Fusion	V	2	6				2					(X)	(-+)				6				H				(F) GOLDEN APPLES FUTURE: Req = Industrialize Kreutz Sungrazer. Effects = Ignore solar flares, 14 VP.
Bernal	GEO Elevator Bernal		10	6	3	3								(e)							▶	☛				(A) HOME: Boost direct to Home Bernal without doubling boost costs.
Promoted Bernal	Space Elevator Lab		10	7	3	3								(e)							▶	☛				(A) Your factory-assisted landings/liftoffs anywhere treat lander burns as normal Burn Spaces.
Bernal	L1 Climate Control Bernal		10	8	3	3								(e)							▶	☛				(A) HOME: You are always the 1st player, superseding all other claimants.
Promoted Bernal	Climate Control Lab		12	8	3	3								(e)							▶	☛				(A) +2 VP per Dirtsides for this Bernal.
Bernal	L2 Collimator Bernal		10	8	3	3								(e)							▶	▶				(A) HOME: Gain the Powersat faction privilege.
Promoted Bernal	Collimator Lab		10	9	3	3								(e)							▶	▶				(A) Gain the Powersat faction privilege. Powersat push includes a Bonus Pivot.
Bernal	L3 Lofstrom Loop Microgravity		10	8	3	3								(e)							▶					(A) HOME: Boost direct to Home Bernal without doubling boost costs.

General					Thruster								Supports			ISRU		Freighter		Bernal	Colony	Colonists		Notes	
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	ISRU	Type	Load limit	Factory load only	Power stat	Promoted colony	Type	Specialty	Ideology	Ability / Future
Promoted Bernal	Lofstrom Loop Microgravity Lab		10	9	3	3								(e)							▶)	🌊			(A) Your factory-assisted landings/liftoffs anywhere treat lander burns as normal Burn Spaces.
Bernal	L4 Antimatter Factory		10	9	3	3								(e)	(2)						▶)	M			(A) HOME: Your Crew has an On-Board Nuclear X reactor.
Promoted Bernal	Antimatter Lab		10	10	3	3								(e)	(2)						▶)	M			(A) Your Crew has an On-Board Nuclear "ANY" reactor.
Bernal	L4s Pharmaceuticals Bernal		10	6	3	3								(e)							▶)	🍀			(A) HOME: Gain the Skunkworks faction privilege.
Promoted Bernal	Pharmaceutics Lab		10	7	3	3								(e)							▶)	🍀			(A) Gain the Skunkworks faction privilege & impose academia hand limit on all opponents.
Bernal	L5 Solar Cell Factory		10	6	3	3								(e)							▶)	▶			(A) HOME: +1 to the Net Thrust of your Spacecraft that use Solar-Power.
Promoted Bernal	Solar Cell Lab		10	8	3	3								(e)							▶)	▶			(A) +2 to the Net Thrust of your Spacecraft that use Solar-Power.
Bernal	L5s Cancer Hospital		10	6	3	3								(e)							▶)	🌊			(A) HOME: You are immune to budget cuts.
Promoted Bernal	Cancer Lab		12	7	3	3								(e)							▶)	🌊			(A) Gain +1 Token VP for each Colony Dome. Your Crew and Human Colonists have a rad-hard of at least 7.
Bernal	SSO Diplomatic		10	6	3	3								(e)							▶)	🍀			(A) HOME: (Module 0) Your delegates in the Ideology of your Faction color are +1 VP each.
Promoted Bernal	Diplomatic Lab		10	7	3	3								(e)							▶)	🍀			(A) (Module 0) Your delegates in the assembly are +1 VP each.
Bernal	Tourism Cycler		10	7	3	3								(e)							▶)	🗑️			(A) HOME: Can designate any Spacecraft to forgo Belt Rolls in the Radiation Belts near Earth.
Promoted Bernal	Tourism Hotel		10	7	3	3								(e)							▶)	🗑️			(A) +2 VP per Dirtside for this Bernal.
Colonist	Babbage Halbonauts	H	2	5												4	🚗					D	👨‍🔧 Engineer		
Colonist	Utility Fog Halbonaut	H	2	5												2	🚗					D	👨‍🔧 Engineer		(A) All of your stacks are Glitch-free. (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.
Colonist	Biomechs	n/a	2	4												3	🚗					H	👨‍🏭 Miner	🟡	
Colonist	Group Mind Immortalists	n/a	2	5												2	🚗					H	👨‍🏭 Miner	🟡	(A) May perform the faction privileges on both sides of your Crew card. (F) PAN SAPIENS FUTURE: Req = Have 3 Factories connected to Space Elevators. Effect = Casus belli for War. (Endgame) +2 VP for each glory chit owned.
Colonist	Botany Bay Convicts	n/a	2	4												4	🚗					H	👨‍🏭 Miner	🟡	
Colonist	Soldier Caste	n/a	2	9												2	🚗🔫					H	👨‍🏭 Miner	🟡	(A) All your Humans can commit Felonies, even if defending Humans are present. (F) SECESSION FUTURE: Req = 2 Promoted Human Colonists at an Anchored Bernal with Dirtside 5+. Effects = Casus belli for War, 10 VP.
Colonist	Boyle Engineering Collective	n/a	3	5												3	🚗					🗑️	👨‍🏭 Miner	🟡	
Colonist	Martian Assembly	n/a	3	6												2	🚗					🗑️	👨‍🏭 Miner	🟡	(A) Acts as a Freighter when building a Space Elevator. (F) BEANSTALK FUTURE: Req = Have 3+ Space Elevators built by any player. Effect (Endgame) = +3 VP for each Factory connected to a Space Elevator.
Colonist	Calypso 2 Seed Sail	n/a	1	3	0	x0	🌊	1		▶	*					4	🚗🔫					🍀	👨‍🏭 Miner	🟢	(A) Can't enter aerobrakes.
Colonist	Wet-Nano Seed Sail	n/a	1	5	1	x0	🌊	1		▶	*					1	🚗🔫					🍀	👨‍🏭 Miner	🟢	(A) -2 to Colocated size rolls on Synodic Comets. Can't enter aerobrakes. (F) NEW VENUS FUTURE: Req = Decommission operational 7+ net thrust thruster on industrialized Synodic Comet (yours). 12 VP + (Endgame) remove all tokens on Venus & comet.
Colonist	Heavy Water Survivalists	n/a	2	5												4	🔫					🌊	👨‍🏭 Engineer	🔴	
Colonist	New Attica Secessionists	n/a	2	6												2	🔫					🌊	👨‍🏭 Engineer	🔴	(A) Boost costs are doubled for all your opponents. (F) SECESSION FUTURE: Req = 2 Promoted Human Colonists at a promoted Anchored Bernal. Effects = Casus belli for War, 7 VP.
Colonist	House of Saud	n/a	2	3												3	🚗					H	👨‍🏭 Miner	🟡	
Colonist	Iceworms	n/a	2	4												1	🚗					H	👨‍🏭 Miner	🟡	(A) Performs epic hazard operation as a free action, & is not Decommissioned if it fails. (F) SUBMARINER FUTURE: Req = Build 3 Submarines. Effect = Doubles your dirtside hydration, not cumulative with other modifiers.
Colonist	Juiced Cosmonauts	n/a	1	4	10	x4	🌊		1							3	🚗					H	👨‍🏭 Miner	🟡	

General		Thruster										Supports			ISRU		Freighter		Bernal	Colony	Colonists			Notes		
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Colonist	Rental Body Guild	n/a	1	6	12	x4	💧	1				☾	~			2	🚀					H	👤	Prospector	🟡	(A) -1 to Colocated size rolls. (F) ET LIFE FUTURE: Req = Have 2 or more Astrobiological Colonies. Effect (Endgame): +2 VP per Astrobiological Colony.
Colonist	Lloyd's Salvage Co.	n/a	1	5																		🍀	👤	Industrialist	🟡	
Colonist	Svalbard Caretakers	n/a	1	6																		🍀	👤	Industrialist	🟡	(A) -1 on all size rolls when prospecting Synodic Sites. (F) DYSON BUBBLE FUTURE: Req = Both Sites of Mercury industrialized by any player. Effects = 5 VP per Factory owned on Mercury.
Colonist	Malcolm	n/a	1	3																		H	👤	Industrialist	🟡	
Colonist	Renaissance Man	n/a	1	4																		H	👤	Industrialist	🟡	(A) If initiating a research auction, can search through one patent deck and choose the card to be auctioned. (F) ARTIFICIAL CONSCIOUSNESS FUTURE: Req = 2 promoted Colonists at an Astrobiology Dirtsides. Effects = May free market any number of cards, 10 VP.
Colonist	Microgravity Pantrophists	n/a	3	5																		H	👤	Engineer	🟡	
Colonist	Blue Goo Sybonts	n/a	3	6																		H	👤	Engineer	🟡	(A) Can produce ET products of Spectral Type C at any Factory. (F) SETI FUTURE: Req = Industrialize 2 Jovian Tojans, 1 each in the Greek & Trojan camps. Effects = As a free action perform 1 inspiration + 1 homestead, 10 VP.
Colonist	Programmable Matter	D	1	4	2	x4	💧	1	▶				~			3	🚀					D	👤	Prospector	🟡	
Colonist	Neumann Matter	D	1	5	4	x4	💧	1	▶				~			1	🚀					D	👤	Prospector	🟡	(A) All of your stacks are Glitch-free. (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.
Colonist	Rock Rats Miners' Union	n/a	3	5								☾	💣			3	🔫					H	👤	Miner	🟢	
Colonist	Alchemist Aviatrices	n/a	3	6									💣			0	🔫					H	👤	Miner	🟢	(A) During Factory Refuel, double the amount of isotope fuel. (F) AEROSTAT FUTURE: Req = Promoted Bernal with Aerostat Dirtsides. Effects = Can homestead as a free action, 14 VP.
Colonist	Security System	D	1	4																		D	👤	Industrialist	🟡	
Colonist	Frankenstein Navigator	D	1	5								☾	X									D	👤	Industrialist	🟡	(A) FINAO costs are halved (drop fractions). (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.
Colonist	Siren Cybernetics Inc.	n/a	3	5						▶	*	☾					🚀🔫🚗					💧	👤	Engineer	🟢	
Colonist	Josephson Implants	n/a	3	6						▶	*	☾					🚀🔫🚗					💧	👤	Engineer	🟢	(A) FINAO costs are halved (drop fractions). (F) SUPREME CULT FUTURE: Req = Active Law in authority. Effects (Module 0) = May lobby w/o removing the delegate used. All Seniority Disks migrate to authority. (Endgame): 10 VP.
Colonist	Smart Pets	D	0	3												3	🚗					D	👤	Miner	🟡	
Colonist	Creeper Neogen	D	0	6												2	🚗					D	👤	Miner	🟡	(A) All of your stacks are Glitch-free. (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.
Colonist	Transorbital Railworkers	n/a	2	4																		H	👤	Engineer	🟡	
Colonist	Kaluga Naniteers	n/a	2	5						▶												H	👤	Engineer	🟡	(A) Your Aqua from a Free Market is doubled. (F) TNO FUTURE: Req = Industrialize 2 Sites in the Neptune Zone. Effects = Can homestead as a free action, 12 VP.
Colonist	Vatican Observers	n/a	1	4																		🍀	👤	Industrialist	🟡	
Colonist	Eugenic Pilgrims	n/a	1	5																		🍀	👤	Industrialist	🟡	(A) Faction privilege not lost in Anarchy. -1 to Colocated size rolls on Synodic Comets. (F) FOOTFALL FUTURE: Req = Decommission operational 7+ net thrust thruster on Industrialized Synodic Comet (yours). Effects = 10 VP + Casus belli. (Endgame) All tokens on the comet eliminated.

Original spreadsheet by Andro Hsu (neandrothal) <https://boardgamegeek.com/filepage/207172/hf4-card-list>. Modified and reformatted by Ian Hayward (www.iandrea.co.uk).

General		Thruster										Supports			Notes	
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	Ability / Future
Thruster	Ablative Plate	V	1	7	2	2	💧		1	▶			(☒🌋)			
Thruster	Ablative Nozzle	V	0	8	3	2	💧		1	▶			(☒🌋)			
Thruster	De Laval Nozzle	M	0	6	5	4	💧		2				(~🌋)			
Thruster	Magnetic Nozzle	M	0	5	3	1	💧		3				(~)			
Thruster	Dumbo	S	0	7	6	5	💧		1				(~🌋)			
Thruster	Timberwind	S	0	7	5	3	💧		1				(☒~🌋)			
Thruster	Hall Effect	C	2	5	3	2	💧			▶				(e)		
Thruster	Ion Drive	C	1	5	2	1/2	💧	1	1	▶				(e)		
Thruster	Mass Driver	M	3	8	4	3	🪨			▶				(-+)		
Thruster	MPD T-wave	M	1	9	2	1/2	🪨			▶				(-+)		
Thruster	Metastable Helium	V	1	0	5	1	💧		1				(☒)		(1)	
Thruster	n-6Li Microfission	V	1	8	5	1/2	💧		1				(☒)		(1)	
Thruster	Monoatomic Plug Nozzle	M	0	6	4	3	💧		1				(~)			
Thruster	Vortex Confined Nozzle	M	0	7	4	2	💧		1				(~)		(1)	
Thruster	Photon Heliogyro	C	0	1	0	0	💧	1		▶	*					(A) Aerobrake decommission. Immune to Flare & Belt Rolls.
Thruster	Electric Sail	C	0	2	2	0	💧	1		▶	*					(A) Aerobrake decommission. Immune to Flare & Belt Rolls.
Thruster	Photon Kite Sail	C	0	0	0	0	💧	1		▶	*					(A) Aerobrake decommission. Immune to Flare & Belt Rolls.
Thruster	Mag Sail	C	0	4	1	0	💧	1		▶	*					(A) Aerobrake decommission. Each Radiation Belt entered = Bonus Burn
Thruster	Ponderomotive VASIMR	V	1	4	3	1	💧		1	▶				(-+)		
Thruster	Pulsed Plasmoid	V	1	5	3	1	🪨			▶	*					
Thruster	Pulsed Inductive	C	1	5	4	2	💧			▶				(-+)		
Thruster	Dual-Stage 4-Grid	C	0	5	2	1/3	💧	1		▶				(e)		
Thruster	Re Solar Moth	D	0	5	3	4	💧		2	▶	*					
Thruster	Colliding Beam H-B Fusion	D	2	5	3	1/10	💧	1	2					(e)	(1)	

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Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Reactor	Gen	Therms	Ability / Future	
Reactor	Cermet NERVA Fission	S	1	7	+3	x1/1	~				
Reactor	Pulsed NTR Fission	S	0	7	0	x1/4	~		(5)		
Reactor	D-D Fusion Magneto-Inertial	D	1	3	+2	x1/1	~				
Reactor	H-B Fusion Reciprocating Plasmoid	D	0	7	+4	x1/2	~		(3)		
Reactor	D-T Fusion Tokamak	H	3	5	+3	x1/2	~		(2)		
Reactor	Antimatter GDM	H	0	9	0	x1/4	✗ ~		(3)		
Reactor	D-T Gun Fusion	H	1	9	+1	x1/4	~	(e)			
Reactor	Macron Blowpipe Fusion	H	0	10	0	x1/10	✗ ~	(e)			
Reactor	Lyman Alpha Trap	S	2	4	-2	x1/1	✗ ~				
Reactor	Free Radical Hydrogen Trap	S	0	4	0	x1/2	✗ ~		(1)		
Reactor	Metallic Hydrogen	V	0	2	+4	x1/1	~		(2)		
Reactor	Fission-Augmented D-T Inertial Fusion	V	1	7	+7	x1/1	~		(2)		
Reactor	Mini-Mag RF Paul Trap	C	1	2	-3	x1/1	✗			(A) SCOOP: -2 ISRU for Colocated ISRU platforms at Aerostat Sites.	
Reactor	Ultracold Neutrons	C	1	5			✗ ~			(A) SCOOP: -2 ISRU for Colocated ISRU platforms at Aerostat Sites.	
Reactor	Pebble Bed Fission	S	1	6	+4	x1/1	~		(1)		
Reactor	VCR Light Bulb Fission	S	0	6	+2	x1/2	~		(1)		
Reactor	Penning Trap	H	2	3			✗ ~				
Reactor	3He-D Fusion Mirror Cell	H	1	5	0	x1/4	~		(1)		
Reactor	Project Orion	S	6	8	+7	x1/1	~		(1)		
Reactor	Project Valkyrie	S	1	9	+8	x1/4	~ (✗)		(3)	(A) When activated, Decommission colocated cards with Rad-Hard <4.	
Reactor	Rubbia Thin Film Fission Hohlräum	M	1	5	0	x1/2	~		(1)		
Reactor	Positronium Bottle	M	0	9	0	x1/2	✗ ~		(1)		
Reactor	Supercritical Water Fission	V	1	7	+3	x1/1	~		(2)		
Reactor	H-6Li Fusor	V	0	4	+2	x1/1	~				

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Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Solar	Air eater	Reactor	Gen	Therms	Ability / Future
Generator	AMTEC Thermoelectric	C	1	6					☾ (⚡)	-I-e	(1)	
Generator	JTEC H2 Thermoelectric	C	1	4			*	☾		-I-e		
Generator	Brayton Turbine	C	1	5				☾	☾ (⚡)	-I-e	(2)	
Generator	O'Meara LSP Paralens	C	0	10	0	x1/2	*	☾		e		
Generator	Cascade Photovoltaic	C	3	1			*			e		
Generator	Buckyball C60 Photovoltaic	C	2	3	+1	x1/1	*			e		
Generator	Cascade Thermoacoustic	V	0	5				☾	☾ (⚡)	e	(2)	
Generator	Dusty Plasma MHD	V	1	6				☾		e		
Generator	Catalyzed Fission Scintillator	D	0	7					☾ (⊗)	-I-e	(1)	
Generator	Diamonoid Electro-Dynamic Tether	D	2	4						-I-e		
Generator	Ericsson Engine	C	1	5				☾	☾ (⚡)	e	(1)	
Generator	Nanocomposite Thermoelectric	C	1	5	+1	x1/1		☾	☾ (⊗⚡)	e		
Generator	Flywheel Compulsator	M	4	4			*			-I-e		
Generator	Superconducting Adductor	M	1	4						-I-e		
Generator	H2-O2 Fuel Cell	C	4	4			*			e		
Generator	Microbial Fuel Cell	C	2	5	+1	x1/1	*			-I-e		
Generator	In-Core Thermionic	S	0	6				☾	☾ (⚡)	-I-e	(2)	
Generator	Z-Pinch Microfission	S	2	9	+4	x1/1		☾		-I-e	(1)	
Generator	Magnetoshell Plasma Parachute	S	0	5	-2	x1/1	*			e		(A) Stack can safely enter aerobreaks. Cannot support Bernals or during industrialisation.
Generator	Granular Rainbow Corral	S	0	10			*			e		(A) Stack can safely enter aerobreaks.
Generator	Marx Capacitor Bank	M	1	4						-I-(e)		
Generator	Casimir Battery	M	0	3						-I-(e)		
Generator	Optoelectric Nuclear Battery	V	2	6				☾		e	(2)	
Generator	Nuclear-Pumped Excimer Flashlamp	V	0	8	+1	x1/1		☾	☾ (⚡)	e	(3)	
Generator	Photon Tether Rectenna	V	2	2	-1	x1/1	*			e		
Generator	Palmer LSP Aerosol Lens	V	0	10	+1	x1/1	*	☾		e		
Generator	Radioisotope Stirling	M	3	4	-2	x1/1				e		
Generator	Triggered Decay Nuclear Battery	M	1	6						-I-e		
Generator	Rankine MHD	M	0	4				☾	☾ (⚡)	e	(2)	
Generator	MHD Open-Cycle	M	0	4	+1	x1/1		☾	☾ (⚡)	-I-e		
Generator	Rankine Solar Dynamic	D	2	4			*			e	(1)	
Generator	Rankine Multiphase	D	0	4					☾ (⊗⚡)	-I-e		
Generator	Solar Stirling	C	3	5			*			e	(1)	
Generator	Thermo-Photovoltaic	C	2	4	+1	x1/1	*			e		

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General					Supports			Notes
Type	Name	Spectral Type	Mass	Rad Hard	Reactor	Gen	Therms	Ability / Future
Radiator	Bubble Membrane	C	0/1	1/0			1	
Radiator	Electrostatic Membrane	C	0/1	3/2			1	
Radiator	Dielectric X-Ray Window	D	4/5	7/7			2	
Radiator	Graphene Crystal X-Ray Mirror	D	0/1	7/7			1	
Radiator	ETHER Charged Dust	M	1/2	1/1			1	
Radiator	Curie Point	M	0/1	5/3			1	
Radiator	Li Heatsink Fountain	S	2/3	6/6			1	(A) [Heavy] Switch to light side after 1st use.
Radiator	Thermochemical Heatsink Fountain	S	1/2	6/6			1	(A) [Heavy] Switch to light side after 1st use.
Radiator	Magnetocaloric Refrigerator	S	2/3	6/6		(e)	3	(A) This card can cool its own supports.
Radiator	Nuclear Fuel Spin Polarizer	S	0/1	5/4			1	
Radiator	Microtube Array	C	2/3	1/0			2	
Radiator	Marangoni Flow	C	0/1	2/1			2	
Radiator	Mo / Li Heat Pipe	M	1/2	2/1			2	
Radiator	Tin Droplet	M	0/1	3/2			2	
Radiator	Qu Tube	M	1/4	4/2			1	
Radiator	ANDR / In Dream Pipe	M	0/1	3/2			2	
Radiator	SS / NaK Pumped Loop	M	2/4	1/0			2	
Radiator	Hula-Hoop	M	1/2	6/6			2	
Radiator	Salt-Cooled Reflux Tube	C	3/4	4/4			2	
Radiator	Buckytube Filament	C	0/1	4/3			2	
Radiator	Steel / Pb-Bi Pumped Loop	M	2/4	3/2			1	
Radiator	Pulsating Heat Pipe	M	1/2	1/1			2	
Radiator	Ti / K Heat Pipe	M	2/4	3/2			1	
Radiator	Flux-Pinned Superthermal	M	1/2	5/5			1	

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General					Thruster									Supports					ISRU		Notes
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	ISRU	Type	Ability / Future			
Robonaut	Blackbody-Pumped Laser	S	0	5									(~)			2					
Robonaut	Fissile Aerosol Laser	S	0	7												2					
Robonaut	Cat Fusion Z-pinch Torch	D	0	2									(X)			2					
Robonaut	H-B Cat Inertial	D	2	2	4	1/3			1				(X)			0					
Robonaut	Flywheel Tractor	D	0	5										(e)		3					
Robonaut	Electrophoretic Sandworm	D	1	5										(-+)		1					
Robonaut	Free Electron Laser	S	2	4										(-+)		1					
Robonaut	Wakefield e-Beam	S	0	5	4	2			2					(-+)		1					
Robonaut	Kuck Mosquito	D	0	6	10	8			2				(~)			3					
Robonaut	Ablative Laser	D	0	6	3	1			3	▶	*					2					
Robonaut	MET Steamer	C	1	4	5	4			1	▶				(e)		2					
Robonaut	Nanobot	C	0	5												1					
Robonaut	Neutral Beam	S	2	5										(-+)		2					
Robonaut	D-D Fusion Inertial	S	1	4	3	1/2			1					(-+)		1					
Robonaut	Nuclear Drill	D	1	6	5	4			1	▶			(~)			3					
Robonaut	Helical Railgun	D	2	8	5	4				▶				(-+)		0					
Robonaut	Phase-Locked Diode Laser	C	1	3										(e)		3					
Robonaut	Lorentz-Propelled Microprobe	C	0	3												3		(A) NANITES: One re-roll if fail 1 or more size rolls.			
Robonaut	Rock Splitter	V	0	5										(e)		4					
Robonaut	MagBeam	V	1	5	4	1			1	▶	*					3		(A) -1 ISRU, +3 thrust if pushed by Powersat.			
Robonaut	Solar-Pumped MHD Exciplex Laser	C	3	4												2					
Robonaut	Quantum Cascade Laser	C	1	5										(e)		0					
Robonaut	Tungsten Resistojet	M	0	5	5	4			1	▶				(e)		3					
Robonaut	MITEE Arcjet	M	0	4	4	2			2	▶				(e)		1					

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General		Supports							Notes
Type	Name	Spectral Type	Mass	Rad Hard	Air eater	Reactor	Gen	Therms	Ability / Future
Refinery	Atomic Layer Deposition	V	2	2			(e)		
Refinery	Ilmenite Semiconductor Film	V	2	6					(A) POWER GIRDLE: If used to industrialise non-atmos site size 8+, permanently gain Powersat faction privilege.
Refinery	Basalt Fiber Spinning	S	3	5		(X ~ B)			
Refinery	Von Neumann Santa Claus Machine	S	2	5					(A) DIVINING NUBOTS: -1 ISRU for Colocated ISRU platform.
Refinery	CVD Molding	M	3	5					
Refinery	Carbonyl Volatilization	M	2	5					(A) THORIUM BREEDER: -3 to Colocated size rolls on S Sites.
Refinery	Carbo-Chlorination	V	2	4			(e)		
Refinery	Solar Carbotherm	V	2	5					(A) ARCOLOGY: Decommiss. of robonaut not needed when used to industrialize in zones Mercury, Venus, Earth
Refinery	Electroforming	M	3	3			(e)		
Refinery	Impact Mold Sinter	M	3	5					(A) FOAMED NICKEL: -1 to Colocated size rolls.
Refinery	Fluidized Bed	V	3	4			(e)		
Refinery	Atmospheric Scoop	V	1	5	⊗		(e)		(A) SCOOP: If operational, this card makes adjacent or colocated aerostat sites into [2 hydration]
Refinery	Foamglass Sintering	D	3	4			(e)		
Refinery	Laser-Heated Pedestal Growth	D	1	5			(e)		(A) SUPERLENS: -1 to all Colocated raygun size rolls.
Refinery	Froth Flotation	D	3	5			(e)		
Refinery	Femtochemistry	D	2	8					(A) SCAVENGING: If Colocated, doubles FTs during site refuel.
Refinery	ISRU Sabatier	V	3	4			(e)		
Refinery	Biophytolytic Algal Farm	V	3	5					(A) COMET LICHEN: -2 to Colocated size rolls on D Sites.
Refinery	In-Situ Leaching	D	3	3		(X ~ B)			
Refinery	Termite Nest	D	1	3		(X ~ B)			(A) MINE REVIVAL: As an op, remove a busted disk and place Claim on a Colocated Site of Size 2+.
Refinery	Magma Electrolysis	V	3	3			(e)		
Refinery	Ionosphere Lasing	V	2	6					(A) IONOSAT: If used to industrialize an Atmospheric Site, permanently gain the Powersat faction privilege.
Refinery	Supercritical Drying	H	1	5		(X)			
Refinery	Solid Flame	H	0	5		(X)			(A) JELLYBOTS: Colocated industrialization is a free action.

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General				Thruster									Supports					Colony	Notes
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	Promoted colony	Ability / Future		
Thruster GW	Amat-Catalyzed Fission-Fusion	S	3	9	10	1/3			2				(X)		(2)	D			
Thruster TW	Amat-Initiated H-B Magnetic-Inertial	S	1	10	8	0			5					(+-)	(1)	D	(F) MINI-BLACK HOLE FUTURE: Req = Industrialized centaur with 10 isotope FTs. Effects = double all isotope refuel, 10 VP.		
Thruster GW	Dense Plasma H-B Focus Fusion	D	1	8	2	1/10			5					(+-)		D			
Thruster TW	Crossfire H-B Focus Fusion	D	1	9	3	0			9					(+-)		D	(F) PROTIUM FUSION FUTURE: Req = Promoted Bernal with H Dirtsides. Effects = double all isotope refuel, 10 VP.		
Thruster GW	Levitated Dipole 6Li-H Fusion	V	4	5	2	0			4						(1)	S			
Thruster TW	Dusty Plasma	V	2	8	2	0			9						(3)	S	(F) MASS BEAM FUTURE: Req = Promoted Bernal with Io or Triton Dirtsides. Effects = your Powersat adds +2 thrust, 7 VP.		
Thruster GW	Mini-Mag Orion Z-Pinch Fission	M	1	9	12	1/3								(+-)	(2)	D			
Thruster TW	Solem Medusa Tugged Orion	M	6	9	9	0			3					(+-)		D	(F) LITHIATED AMMONIA ICE STARSHIP FUTURE: Req = Ad astra exit with 10 isotope fuel. Effect = 14 VP.		
Thruster GW	Salt-Water Zubrin	S	1	6	14	1/2			1						(5)	M			
Thruster TW	Zubrin-GDM	S	3	8	6	0			8					(+-)	(4)	M	(F) SPACEFARING FUTURE: Req = Bernal with 8+ dirtside hydration. Effects = Allowed 1 extra Colonist, 7 VP.		
Thruster GW	Spheromak 3He-D Magnetic Fusion	H	4	8	6	1/10			6					(e)	(4)	H			
Thruster TW	Colliding FRC 3He-D Fusion	H	3	9	4	0			10				(ANY)	(+-)	(2)	H	(F) ENZMANN STARSHIP FUTURE: Req = Ad astra exit with 2 Promoted Colonists + Mobile Factory. Effect = 12 VP.		
Thruster GW	VISTA D-T Inertial Fusion	H	5	8	9	1/4			3					(+-)	(2)	H			
Thruster TW	Daedalus 3He-D Inertial Fusion	H	5	9	11	0			8					(+-)	(3)	H	(F) FUSION CANDLE FUTURE: Req = Triton Colony & Promoted Bernal with Neptune Aerostat Dirtsides. Effects = double all isotope refuel, 14 VP.		

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General				Thruster									Supports				Bernal	Colony	Notes
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	Power stat	Promoted colony	Ability / Future	
Bernal	GEO Elevator Bernal		10	6	3	3								(e)		▶	☛	(A) HOME: Boost direct to Home Bernal without doubling boost costs.	
Promoted Bernal	Space Elevator Lab		10	7	3	3								(e)		▶	☛	(A) Your factory-assisted landings/liftoffs anywhere treat lander burns as normal Burn Spaces.	
Bernal	L1 Climate Control Bernal		10	8	3	3								(e)		▶	☛	(A) HOME: You are always the 1st player, superseding all other claimants.	
Promoted Bernal	Climate Control Lab		12	8	3	3								(e)		▶	☛	(A) +2 VP per Dirtsides for this Bernal.	
Bernal	L2 Collimator Bernal		10	8	3	3								(e)		▶	▶	(A) HOME: Gain the Powersat faction privilege.	
Promoted Bernal	Collimator Lab		10	9	3	3								(e)		▶	▶	(A) Gain the Powersat faction privilege. Powersat push includes a Bonus Pivot.	
Bernal	L3 Lofstrom Loop Microgravity		10	8	3	3								(e)		▶	💧	(A) HOME: Boost direct to Home Bernal without doubling boost costs.	
Promoted Bernal	Lofstrom Loop Microgravity Lab		10	9	3	3								(e)		▶	💧	(A) Your factory-assisted landings/liftoffs anywhere treat lander burns as normal Burn Spaces.	
Bernal	L4 Antimatter Factory		10	9	3	3								(e)	(2)	▶	M	(A) HOME: Your Crew has an On-Board Nuclear X reactor.	
Promoted Bernal	Antimatter Lab		10	10	3	3								(e)	(2)	▶	M	(A) Your Crew has an On-Board Nuclear "ANY" reactor.	
Bernal	L4s Pharmaceuticals Bernal		10	6	3	3								(e)		▶	☘	(A) HOME: Gain the Skunkworks faction privilege.	
Promoted Bernal	Pharmaceuticals Lab		10	7	3	3								(e)		▶	☘	(A) Gain the Skunkworks faction privilege & impose academia hand limit on all opponents.	
Bernal	L5 Solar Cell Factory		10	6	3	3								(e)		▶	▶	(A) HOME: +1 to the Net Thrust of your Spacecraft that use Solar-Power.	
Promoted Bernal	Solar Cell Lab		10	8	3	3								(e)		▶	▶	(A) +2 to the Net Thrust of your Spacecraft that use Solar-Power.	
Bernal	L5s Cancer Hospital		10	6	3	3								(e)		▶	💧	(A) HOME: You are immune to budget cuts.	
Promoted Bernal	Cancer Lab		12	7	3	3								(e)		▶	💧	(A) Gain +1 Token VP for each Colony Dome. Your Crew and Human Colonists have a rad-hard of at least 7.	
Bernal	SSO Diplomatic		10	6	3	3								(e)		▶	☘	(A) HOME: (Module 0) Your delegates in the Ideology of your Faction color are +1 VP each.	
Promoted Bernal	Diplomatic Lab		10	7	3	3								(e)		▶	☘	(A) (Module 0) Your delegates in the assembly are +1 VP each.	
Bernal	Tourism Cyclor		10	7	3	3								(e)		▶	☛	(A) HOME: Can designate any Spacecraft to forgo Belt Rolls in the Radiation Belts near Earth.	
Promoted Bernal	Tourism Hotel		10	7	3	3								(e)		▶	☛	(A) +2 VP per Dirtsides for this Bernal.	

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General					Thruster							Supports			Freighter		Colony	Notes	
Type	Name	Spectral Type	Mass	Rad Hard	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	Load limit	Factory load only	Promoted colony	Ability / Future
Freighter	Fission-Heated Steam	Any	0	5									(~)			2		M	
Freighter Fleet	Fission GCR	Any	1	6									(~)			6		M	(A) Can liftoff/land on Sites that are less than size 6 without factory-assist. (F) EXOPLANET HUNT FUTURE: Req = Claim Sedna. Effect = (Endgame) 12 VP.
Freighter	Fusion Fragment Sail	V	2	1				1								2		M	(A) Immune to flares & radiation belts.
Freighter Fleet	Antiproton Sail and Harvester	V	2	9				4								6		M	(A) +1 net thrust if starting its move on a radiation belt. (F) ANTIMATTER FUTURE: Req = Promoted Bernal with S Dirtsides. Effects = double isotope refuel, 10 VP.
Freighter	HIIPER Beam Rider	V	4	4				1						(e)		4		▶	
Freighter Fleet	Magnetic Mirror Beam Rider	V	3	6				3						(e)		5		▶	(A) Can liftoff/land on Sites that are less than size 6 without factory-assist. (F) STAR WISP FUTURE: Req = Promoted Freighter (End game) at either neutrino sunlens (6 VP) or EM sunlens = 11 VP.
Freighter	Inflatable Solar-Heated	Any	0	5												2		C	(A) SOLAR HEATED: If not using Powersat, may move out only as far as the Ceres zone.
Freighter Fleet	Archimedes Palmer Lens	Any	0	10												5		C	(A) SOLAR HEATED: If not using Powersat, may move out only as far as the Jupiter zone. (F) TERRAFORM FUTURE: Req = Promoted Bernal at a non-Martian Atmospheric Dirtsides. Effect = 8 VP.
Freighter	Poodle Steam	Any	0	7												2		S	(A) RADIOISOTOPE: +2 thrust if its move starts on a Factory.
Freighter Fleet	D-Nanotube Dirt Launcher	Any	0	9												3		S	(F) BEANSTALK FUTURE: Req = 3+ Space Elevators built by any player. Effect (Endgame) = +3 VP for each Factory connected to a Space Elevator.
Freighter	Rotary Dirt Launcher	Any	5	4									(~)	(e)		2		C	
Freighter Fleet	KESTS Hoop Dirt Launcher	Any	15	8									(~)	(e)		15		C	(F) BEEHIVE ARK FUTURE: Req = Promoted Bernal anchored at a Synodic Comet. Effect = 7 VP.
Freighter	Z-Pinch D-T / 6Li Fusion	V	5	3				1					(X)	(-+)		3		H	
Freighter Fleet	Z-Pinch 3He-D Target Fusion	V	2	6				2					(X)	(-+)		6		H	(F) GOLDEN APPLES FUTURE: Req = Industrialize Kreutz Sungrazer. Effects = Ignore solar flares, 14 VP.

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General		Thruster											Supports			ISRU		Colony		Colonists			Notes
Type	Name	Spectral Type	Mass	Rad	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	ISRU	Type	Promoted colony	Type	Specialty	Ideology	Ability / Future	
Colonist	Babbage Halbonauts	H	2	5												4		D		Engineer			
Colonist	Utility Fog Halbonaut	H	2	5												2		D		Engineer		(A) All of your stacks are Glitch-free. (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.	
Colonist	Biomechs	n/a	2	4												3		H		Miner			
Colonist	Group Mind Immortalists	n/a	2	5												2		H		Miner		(A) May perform the faction privileges on both sides of your Crew card. (F) PAN SAPIENS FUTURE: Req = Have 3 Factories connected to Space Elevators. Effect = Casus belli for War. (Endgame) +2 VP for each glory chit owned.	
Colonist	Botany Bay Convicts	n/a	2	4												4		H		Miner			
Colonist	Soldier Caste	n/a	2	9												2		H		Miner		(A) All your Humans can commit Felonies, even if defending Humans are present. (F) SECESSION FUTURE: Req = 2 Promoted Human Colonists at an Anchored Bernal with Dirtside 5+. Effects = Casus belli for War, 10 VP.	
Colonist	Boyle Engineering Collective	n/a	3	5												3				Prospector			
Colonist	Martian Assembly	n/a	3	6												2				Prospector		(A) Acts as a Freighter when building a Space Elevator. (F) BEANSTALK FUTURE: Req = Have 3+ Space Elevators built by any player. Effect (Endgame) = +3 VP for each Factory connected to a Space Elevator.	
Colonist	Calypso 2 Seed Sail	n/a	1	3	0	x0		1								4				Prospector		(A) Can't enter aerobrakes.	
Colonist	Wet-Nano Seed Sail	n/a	1	5	1	x0		1								1				Prospector		(A) -2 to Colocated size rolls on Synodic Comets. Can't enter aerobrakes. (F) NEW VENUS FUTURE: Req = Decommission operational 7+ net thrust thruster on industrialized Synodic Comet (yours). 12 VP + (Endgame) remove all tokens on Venus & comet.	
Colonist	Heavy Water Survivalists	n/a	2	5												4				Engineer			
Colonist	New Attica Secessionists	n/a	2	6												2				Engineer		(A) Boost costs are doubled for all your opponents. (F) SECESSION FUTURE: Req = 2 Promoted Human Colonists at a promoted Anchored Bernal. Effects = Casus belli for War, 7 VP.	
Colonist	House of Saud	n/a	2	3												3		H		Miner			
Colonist	Iceworms	n/a	2	4												1		H		Miner		(A) Performs epic hazard operation as a free action, & is not Decommissioned if it fails. (F) SUBMARINER FUTURE: Req = Build 3 Submarines. Effect = Doubles your dirtside hydration, not cumulative with other modifiers.	
Colonist	Juiced Cosmonauts	n/a	1	4	10	x4		1								3		H		Prospector			
Colonist	Rental Body Guild	n/a	1	6	12	x4		1								2		H		Prospector		(A) -1 to Colocated size rolls. (F) ET LIFE FUTURE: Req = Have 2 or more Astrobiological Colonies. Effect (Endgame): +2 VP per Astrobiological Colony.	
Colonist	Lloyd's Salvage Co.	n/a	1	5																Industrialist			
Colonist	Svalbard Caretakers	n/a	1	6																Industrialist		(A) -1 on all size rolls when prospecting Synodic Sites. (F) DYSON BUBBLE FUTURE: Req = Both Sites of Mercury industrialized by any player. Effects = 5 VP per Factory owned on Mercury.	
Colonist	Malcolm	n/a	1	3														H		Industrialist			
Colonist	Renaissance Man	n/a	1	4														H		Industrialist		(A) If initiating a research auction, can search through one patent deck and choose the card to be auctioned. (F) ARTIFICIAL CONSCIOUSNESS FUTURE: Req = 2 promoted Colonists at an Astrobiology Dirtside. Effects = May free market any number of cards, 10 VP.	
Colonist	Microgravity Pantrophists	n/a	3	5														H		Engineer			

General				Thruster								Supports				ISRU		Colony		Colonists			Notes
Type	Name	Spectral Type	Mass	Rad	Thrust	Fuel	Type	Bonus pivots	After burn	Push	Solar	Air eater	Reactor	Gen	Therms	ISRU	Type	Promoted colony	Type	Specialty	Ideology	Ability / Future	
Colonist	Blue Goo Sybonts	n/a	3	6														H	👨‍🔬	Engineer	🌑	(A) Can produce ET products of Spectral Type C at any Factory. (F) SETI FUTURE: Req = Industrialize 2 Jovian Tojans, 1 each in the Greek & Trojan camps. Effects = As a free action perform 1 inspiration + 1 homestead, 10 VP.	
Colonist	Programmable Matter	D	1	4	2	x4	💧	1	▶				~			3	🚀	D	👨‍🔬	Prospector	🌑		
Colonist	Neumann Matter	D	1	5	4	x4	💧	1	▶				~			1	🚀	D	👨‍🔬	Prospector	🌑	(A) All of your stacks are Glitch-free. (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.	
Colonist	Rock Rats Miners' Union	n/a	3	5								☞	💣			3	🔫	H	👨‍🔬	Miner	🟢		
Colonist	Alchemist Aviatrixes	n/a	3	6									💣			0	🔫	H	👨‍🔬	Miner	🟢	(A) During Factory Refuel, double the amount of isotope fuel. (F) AEROSTAT FUTURE: Req = Promoted Bernal with Aerostat Dirtsides. Effects = Can homestead as a free action, 14 VP.	
Colonist	Security System	D	1	4														D	👨‍🔬	Industrialist	🌑		
Colonist	Frankenstein Navigator	D	1	5								☞	X					D	👨‍🔬	Industrialist	🌑	(A) FINAO costs are halved (drop fractions). (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.	
Colonist	Siren Cybernetics Inc.	n/a	3	5					▶	☀️		☞					🚀🔫🚗	👨‍🔬	👨‍🔬	Engineer	🟢		
Colonist	Josephson Implants	n/a	3	6					▶	☀️		☞					🚀🔫🚗	👨‍🔬	👨‍🔬	Engineer	🟢	(A) FINAO costs are halved (drop fractions). (F) SUPREME CULT FUTURE: Req = Active Law in authority. Effects (Module 0) = May lobby w/o removing the delegate used. All Seniority Disks migrate to authority. (Endgame): 10 VP.	
Colonist	Smart Pets	D	0	3												3	🚗	D	👨‍🔬	Miner	🌑		
Colonist	Creeper Neogen	D	0	6												2	🚗	D	👨‍🔬	Miner	🌑	(A) All of your stacks are Glitch-free. (F) UPLIFT FUTURE: Req = Robots not Emancipated, Human at a promoted Bernal & spend 20 Aqua. Effects = Every Robot becomes Emancipated, Casus belli for War, 12 VP.	
Colonist	Transorbital Railworkers	n/a	2	4														H	👨‍🔬	Engineer	🌑		
Colonist	Kaluga Naniteers	n/a	2	5					▶									H	👨‍🔬	Engineer	🌑	(A) Your Aqua from a Free Market is doubled. (F) TNO FUTURE: Req = Industrialize 2 Sites in the Neptune Zone. Effects = Can homestead as a free action, 12 VP.	
Colonist	Vatican Observers	n/a	1	4														🍀	👨‍🔬	Industrialist	🌑		
Colonist	Eugenic Pilgrims	n/a	1	5														🍀	👨‍🔬	Industrialist	🌑	(A) Faction privilege not lost in Anarchy. -1 to Colocated size rolls on Synodic Comets. (F) FOOTFALL FUTURE: Req = Decommission operational 7+ net thrust thruster on Industrialized Synodic Comet (yours). Effects = 10 VP + Casus belli. (Endgame) All tokens on the comet eliminated.	