Animatronic Pit Droid: files to print

Only what you need for the full animatronic version on a 220 x 220 mm bed. Optional lines are in italics.

Head

File	Qty	Mirror
DDPD23Head1FrontSP.stl	**x1**	No
DDPD23Head2FrontSP.stl	**x1**	No
DDPD23HeadBackSP.stl	**x1**	No
DDPD23DomeFrontSP.stl	**x1**	No
DDPD23DomeBackSP.stl	**x1**	No
DDPD23MainEye.stl	**x1**	No
DDPD23InnerEye.stl	**x1**	No
DDPD23EyeBack.stl	**x1**	No
DDPD23EyeFront.stl	**x1**	No
DDPD23BackDetail.stl	**x1**	No
DDPD23DiscBack.stl	**x1**	No
DDPD23DiscFrame.stl	**x1**	No
DDPD23DiscFront.stl	**x1**	No
DDPD23DiscDowels31mm.stl	**x1**	No
DDPD23HeadRings.stl	**x1**	No
DDPD23AntennaTips.stl	**x1**	No
DDPD23LensRing80mm.stl	**x1**	No
DDPD23COAnimatronicHeadPivot.stl	**x1**	No
DDPD23CONeck.stl	**x1**	No
DDPD23CONeckTop.stl	**x1**	No
DDPD23COServoBracket.stl	**x1**	No
DDPD23COServoArm.stl	**x1**	No
DDP23COPitServoGears.stl	**x1**	No
Rod End 33mm and Rod End 72mm	**x1**	No

Torso and waist

File	Qty	Mirror
DDPD23TorsoSplitLow.stl	**x1**	No
DDPD23TorsoSplitUp.stl	**x1**	No
DDPD23Door.stl	**x1**	No
DDCOPitBellyMain.stl	**x1**	No
DDCOPitBellyFront.stl	**x1**	No
DDCOPitBellyBack.stl	**x1**	No
DDCOPitHipFront.stl	**x1**	No
DDCOPitHipRear.stl	**x1**	No
DDCOShaftAdaptor.stl	**x1**	No
DDCOServoClamp.stl	**x1**	No

Legs and feet

File	Qty	Mirror
DDPD23ThighRightSplit.stl	**x2**	1 of 2 mirrored
DDPD23ShinRightSplit.stl	**x2**	1 of 2 mirrored
DDPD23FootRight.stl	**x2**	1 of 2 mirrored

Arms and hands

File	Qty	Mirror
DDPD23UpArmLorR.stl	**x2**	No
DDPD23ForeArmLorR.stl	**x2**	No
DDPD23ForeArmDetailLorR.stl	**x2**	No
DDPD23OutElbowLorR.stl	**x2**	No
DDPD23ShoulderConnectLorR.stl	**x2**	No
DDPD23ElbowLollipops.stl	**x1**	No
DDPD23WristThumbLorR.stl	**x2**	No
DDPD23FingersLorR.stl	**x2**	No
COPD23ArmLeverLorR.stl	**x2**	No
COPD23BearingCarrierLorR.stl	**x2**	No
COPD23ShoulderSleeveLorR.stl	**x2**	No
COPD23ServoMountBaseL.stl	**x1**	Do not mirror
COPD23ServoMountBaseR.stl	**x1**	Do not mirror
COPD23ServoMountL.stl	**x1**	Do not mirror
COPD23ServoMountR.stl	**x1**	Do not mirror
COPD23LinkL and COPD23LinkR	**x1**	Do not mirror

Backpack

File	Qty	Mirror
DDCOPitBackpack.stl	**x1**	No
DDCOPitBackPackAdaptor.stl	**x1**	No
DDCOBackPackDoor.stl	**x1**	No

PD-23 stand

File	Qty	Mirror
DDPD23StandFrontRight.stl	**x2**	1 of 2 mirrored
DDPD23StandBackRight.stl	**x2**	1 of 2 mirrored

Death Star grill

File	Qty	Mirror
DDPD23StandDeathStarGrill.stl	**x4**	2 mirrored

Dowels

File	Qty	Mirror
DD5.7mmx17mmDowel.stl	**x30**	No

Total: about 74 prints, plus a first batch of dowels. The stand and grill are included in that number.

Stand and grill: glue the quarters first, then the two halves, using the regular 5.7 mm dowels on a perfectly flat surface. The stand is fixed with 2 M6 carriage bolts of 40 to 45 mm with 17 mm cap nuts. In the feet, drill out the last bit of the hole to 6 mm. For LEDs you can drill out the two closed holes at the back to 7 or 8 mm. The whole grill (418 mm) does not fit on your bed, hence the separate plates.

Recommended print settings

For an Ender 3 V2 with a 0.4 mm nozzle. The designer gives wall thickness in millimetres, not in number of walls. At 0.4 mm, 1.2 mm equals 3 walls and 1.6 mm equals 4 walls.

By type of part

Type	Parts	Walls	Infill
Light	Head, dome, torso, belly, backpack	1.2 mm (3 walls)	5 to 8 percent. Never above 8 percent, and 5 percent for the head. Check in the preview that the infill supports the internal overhangs.
Medium	Legs, upper arms, forearms, hips, the stand (my advice, it carries the weight)	1.2 to 1.6 mm (3 to 4 walls)	5 to 7 percent
Strong or small	Feet, hands, fingers, elbows, shoulder sleeve, neck, neck top, servo bracket and servo arm, arm lever, bearing carrier, servo mounts, shaft adaptor, servo clamp	1.6 mm (4 walls)	15 to 20 percent
Elbow lollipops	DDPD23ElbowLollipops	1.6 mm (4 walls)	Print in the stored orientation. Never upright, or they will break.
Printable rods	Rod End 33mm and Rod End 72mm (optional)	4 walls	30 percent, layer height 0.2 mm at most, Z seam random
Dowels	DD5.7mmx17mmDowel	Default	Print lying down, no supports. Too tight after drilling: print at 98 or 99 percent.
Grill	Death Star Grill	3 walls (1.2 mm)	15 to 20 percent (my advice, it is a thin plate)

General

Setting	Value	Source
Layer height	0.2 mm	My starting value
Nozzle	0.4 mm. A 0.8 mm nozzle prints large, less detailed parts in about half the time.	Designer
PLA temperature	200 to 210 degrees nozzle, 60 degrees bed	My starting value, tune with a temperature tower
Supports	Most parts need none. The ones that do: low torso, hands and fingers, the rear stand quarters under the bolt hole. High overhang angle, 75 to 80 degrees in Cura. Density 8 to 10 percent.	Designer
Brim	2 to 3 mm helps. Turn brim and skirt off if a part does not fit, such as the feet, the back of the head and the stand quarters.	Designer
Bed adhesion	3DLac spray. Then no raft needed.	Designer
Orientation	Keep the stored orientation. The designer chose the strongest side up.	Designer
Mirroring	Files with Right in the name: mirror on the X axis for the left side. Files with L or R: do not mirror.	Designer
Under-extrusion	Push the Bowden tube firmly against the nozzle. Nozzle in, half a turn back, tube in, clip on, nozzle half a turn tight.	Designer

The designer's values come from the Droid Division info PDFs. Values marked as my starting value are my own suggestions for an Ender 3 V2, not a specification. Test them on a small part before a large print.