



기본 디자인 구조



기본 기능

## 벽면 크랙 측정용 드론 제작

□ 협의를 위한 드론 이해 필독서



- 번거로움을 피하기 위해 작은 사항까지 일일이 언급하지 않은 것들은 일반적 제작 방식을 준용하여 디자인과 설계 진행

- 결합 방식 사전 이해

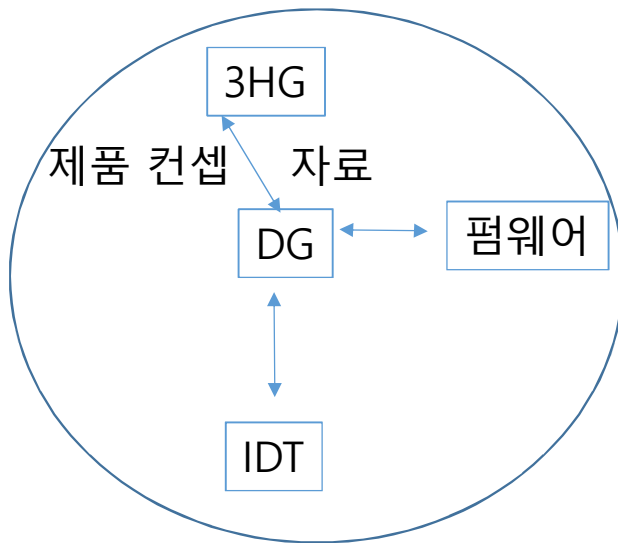


□ 세부 지원내용

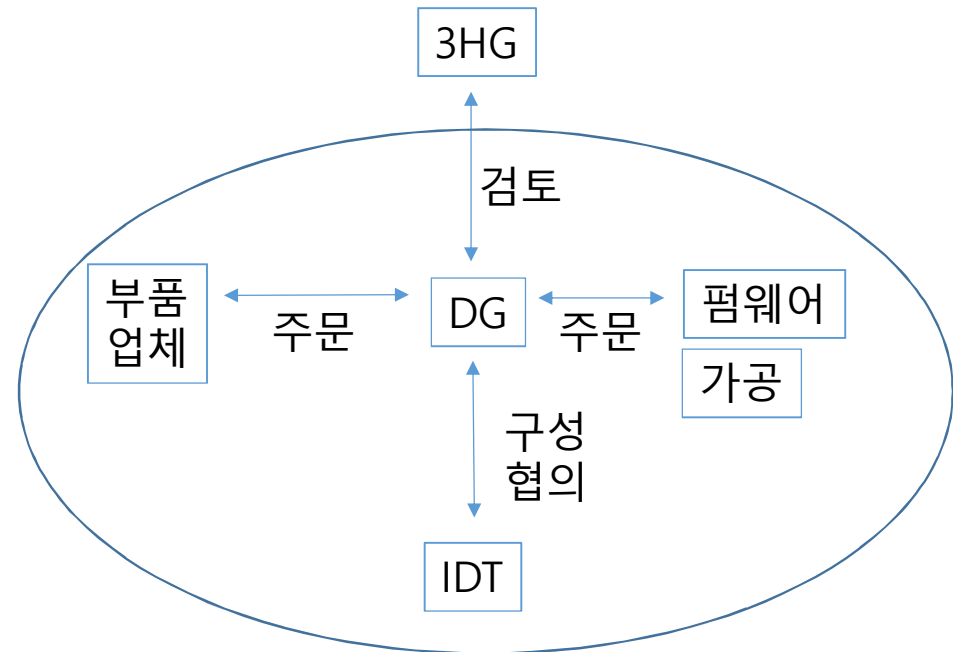
바우처	디자인/조립	15,000,000	기업부담금	제작 구입비	11,250,000	총사업비
	기구부	15,000,000				
	회로/펌웨어	15,000,000				
합계		45,000,000			11,250,000	56,250,000
VAT 포함		49,500,000			12,375,000	61,875,000

## □ 업무 프로세스

(초기 업무 프로세스)



(진행 업무 프로세스)



## □ 제작 가이드 1

### 1. 계측 측량 가능한 드론



2. 장시간 사용가능 가솔린-전기 하이브리드 드론 (전원보드 참조)

3. 기성 프레임/부품을 사용한 제품 구성

### • 핵심 기능

1. 앞/위쪽 계측 가능한 틸딩 구조

2. 안정적 측정을 위해 벽에 고정할 수 있는 흡입 구조

3. 정확한 측정값을 위해 젤 토출기 사용



- 구현 예시



1)축 회전

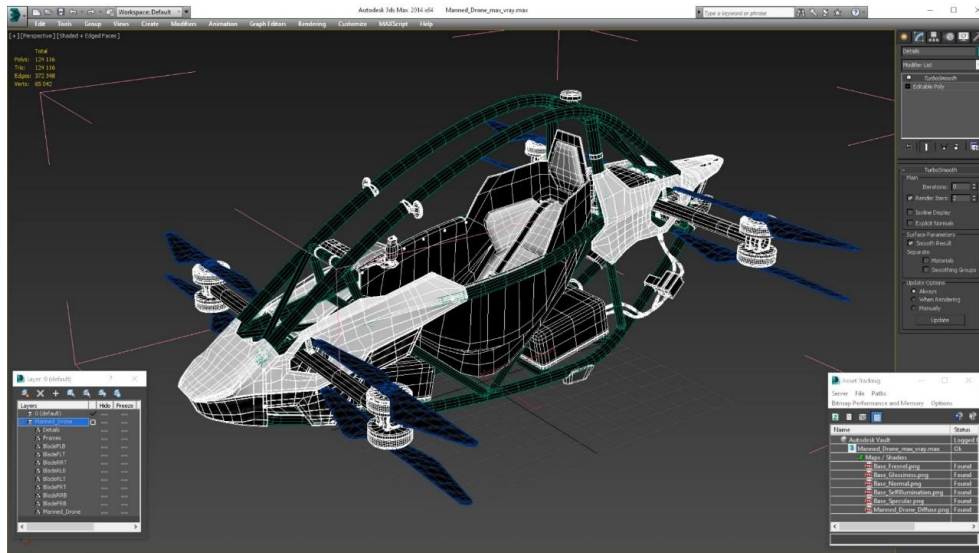


2)흡착



3)젤 토출기

## □ 구현 접근



### ■ 기본 디자인 (스케일 다운)

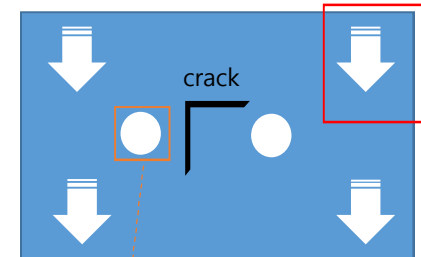
<https://www.turbosquid.com/ko/3d-models/3d-manned-drone-1914496>



### ■ 기타 구동부

<https://blog.daum.net/vmecha100/19>

<https://hl2kvx.tistory.com/m/7920?category=584791>  
<https://vmecha.com/ko/shop/%EB%AF%B8%EB%B6%84%EB%A5%98/vtm10/>

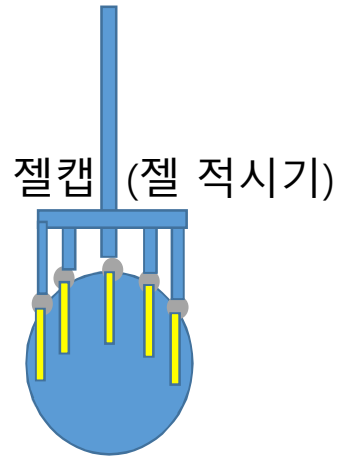


초음파 젤 투입

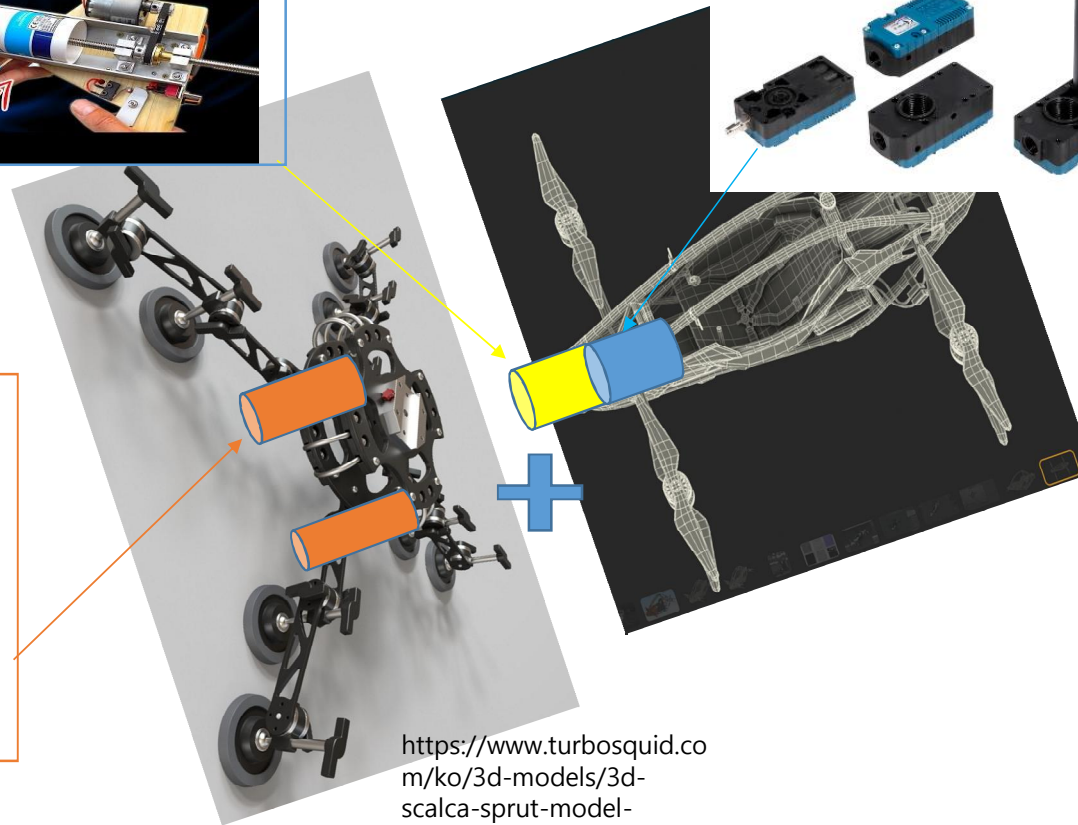
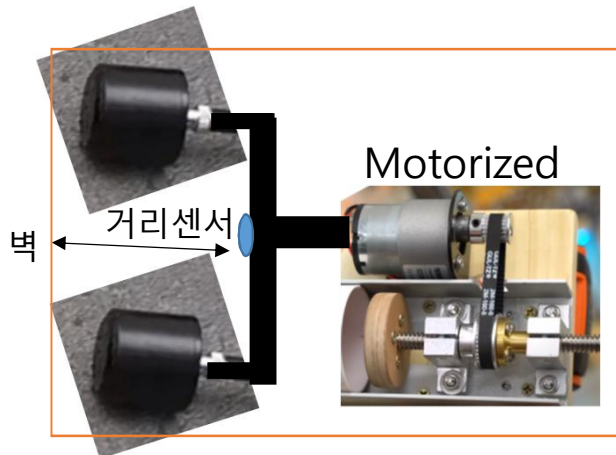




## □ 기본 디자인 수정부(흡착제+에어펌프/탐촉자+젤)



젤 토출기



<https://www.turbosquid.com/ko/3d-models/3d-scalca-sprut-model-1468130>

<https://vmeca.com/ko/shop/vacuum-pump/mini-pump/vtx10/>

VTX10

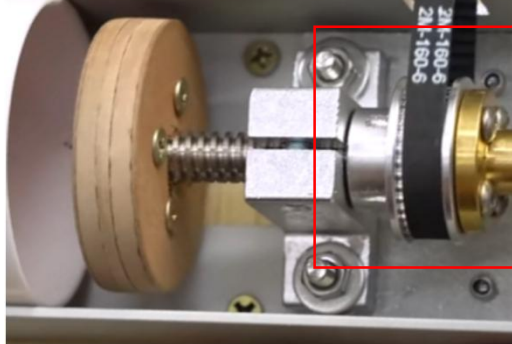
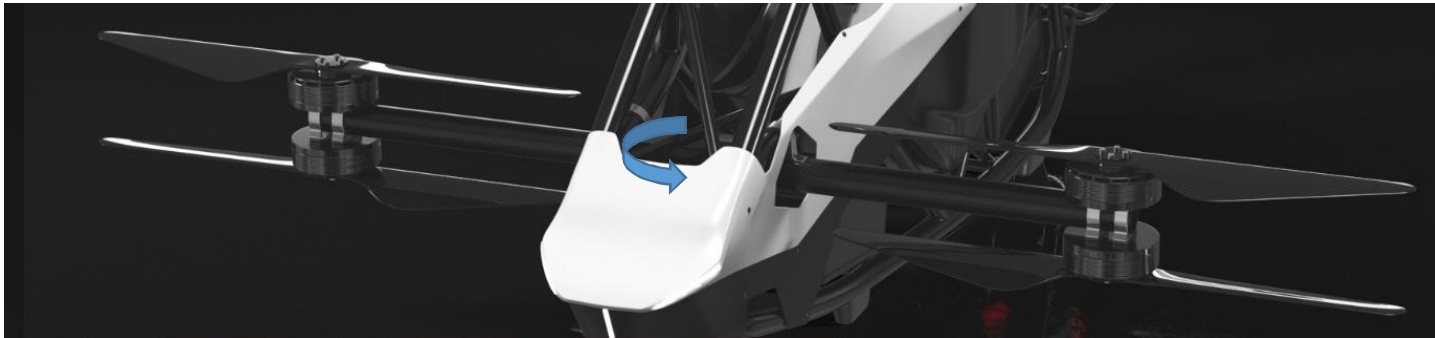
Mini Vacuum Pump

- 최대 진공도 : -92 kPa
- 최대 흡입 유량 : 62 NI/min
- 에어 소비량 : 48 NI/min @ 5.3 bar

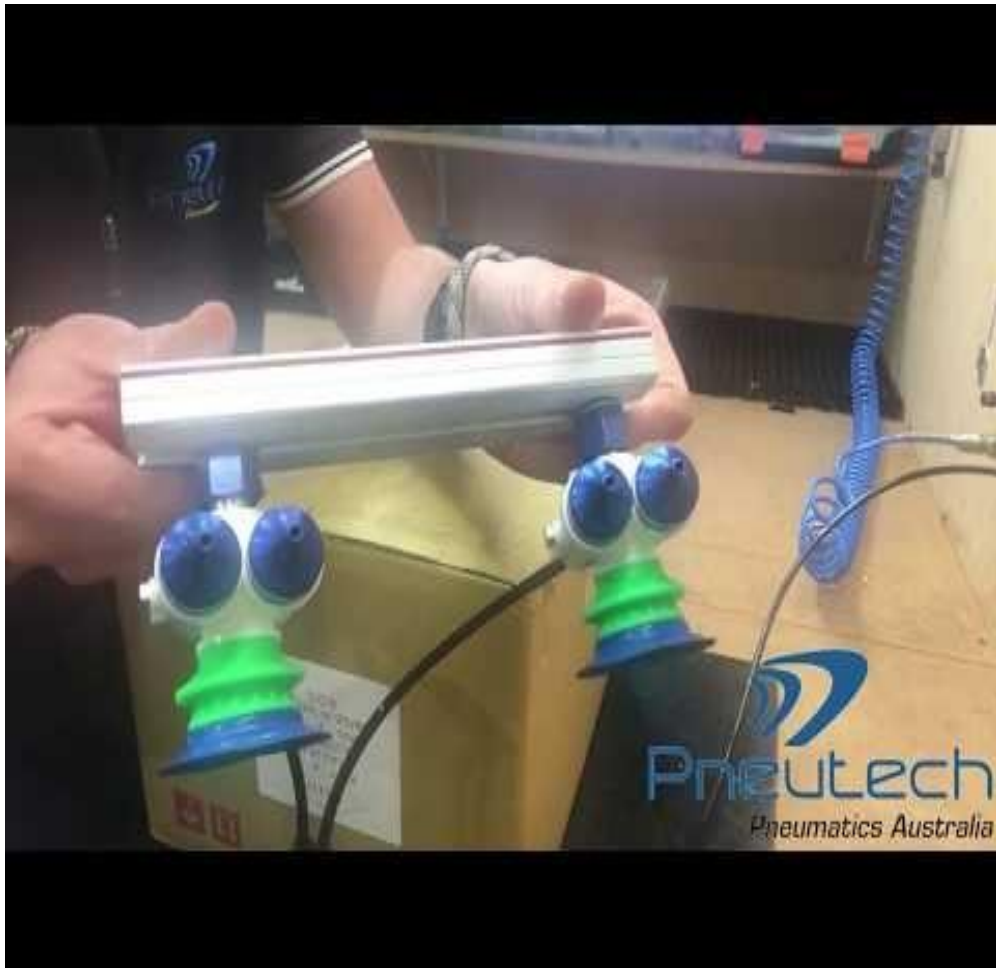
SKU: VTX10

카테고리 : 미니펌프 / 진공발생기

- 1)틸팅-축 회전



- 2) 흡착과 3) 젤 토출기 참조자료



흡착



젤 토출기

- 탐측자도 틸딩-관절 기능





## □ 제작 가이드 2

1. 계측 측량 가능한 드론
- 2. 장시간 사용가능 가솔린-전기 하이브리드 드론 (전원보드 참조)**
3. 기성 프레임/부품을 사용한 제품 구성

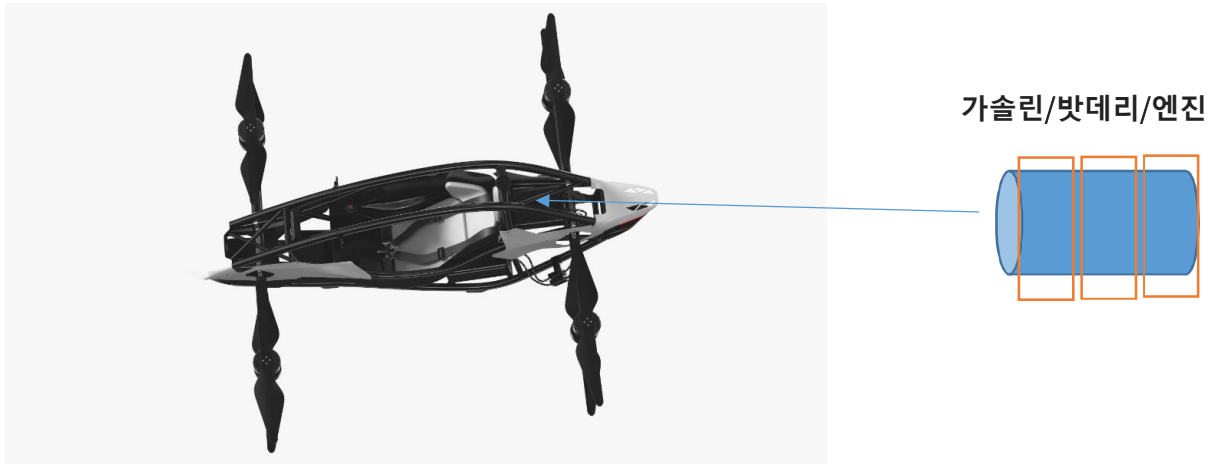


### • 핵심 기능

1. 전기계통 연결 부위 확인
2. 전원보드에 전기 발전기 연결



□ 기본 디자인 수정부(가솔린+бат데리+엔진)



가솔린/бат데리/엔진



가솔린통

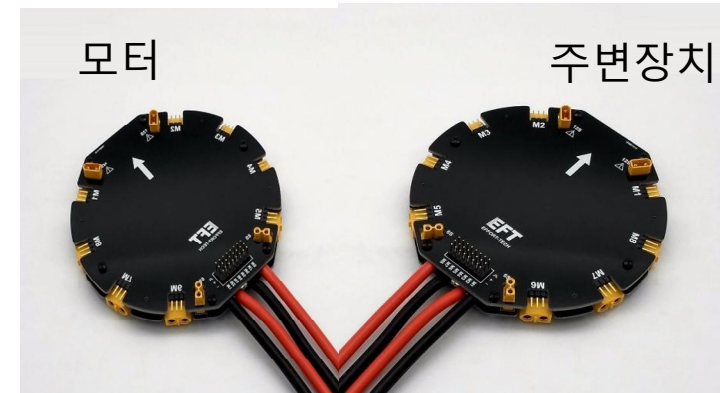


бат데리



가솔린 연소엔진  
\*픽스호크와 연결 필요  
\* 호수 연결 필요

## □ 전원보드 및 분배방식



가솔린 발전기엔진

- 2개의 배터리를 사용하여 안정적 전원 공급
- 노란색은 전원을가져가는 연결부

[https://www.aliexpress.com/item/4000842302502.html?spm=a2g0o.store\\_pc\\_groupList.8148356.2.366f121dH3gv0&pdp\\_npi=2%40dis%21USD%21US%20%2465.00%21US%20%2465.00%21US%20%2465.00%21%21%21%21%400b0a187b16610532784361745edade%2110000009105306280%21sh](https://www.aliexpress.com/item/4000842302502.html?spm=a2g0o.store_pc_groupList.8148356.2.366f121dH3gv0&pdp_npi=2%40dis%21USD%21US%20%2465.00%21US%20%2465.00%21US%20%2465.00%21%21%21%21%400b0a187b16610532784361745edade%2110000009105306280%21sh)

## □ 전원과 주변장치 연결



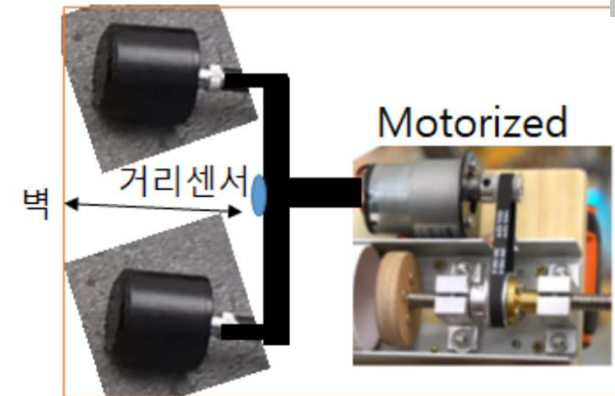
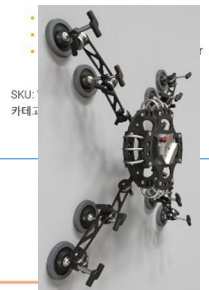
압착/  
센서

젤 토출기



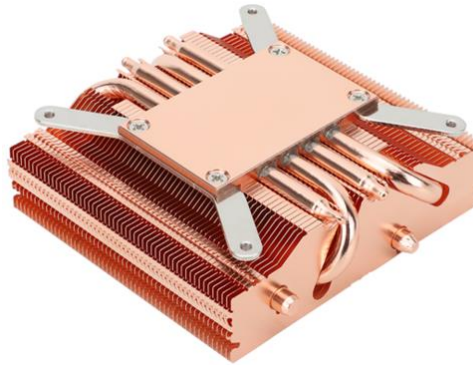
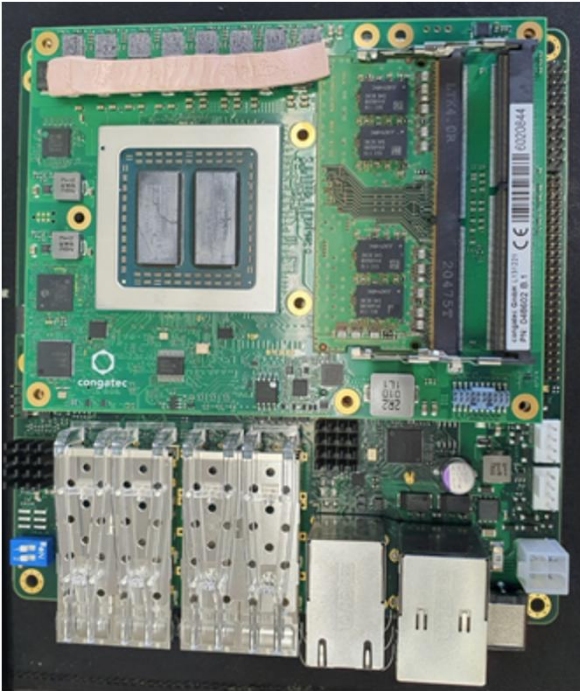
VTX10

Mini Vacuum Pump





□ 쿨링 하우징 + IP등급 확보 고려



하우징 ?

## □ 제작 가이드 3

1. 계측 측량 가능한 드론
2. 장시간 사용가능 가솔린-전기 하이브리드 드론 (전원보드 참조)
3. 기성 프레임/부품을 사용한 제품 구성

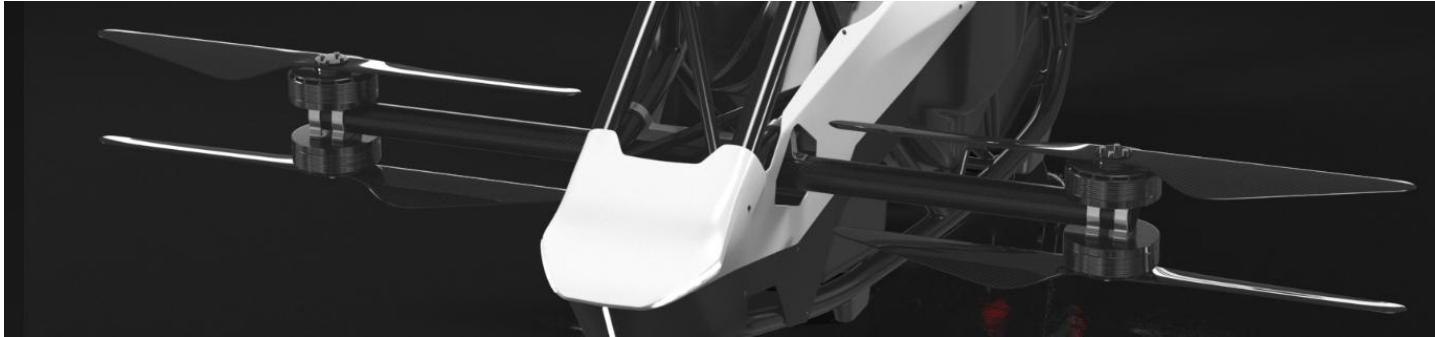


### • 핵심 기능

1. 기 개발 모터 사용
2. 탄소 카본 프레임을 기본 사용
3. 폴딩가능한 구조 개발



## □ 핵심부품-모터



기성 제품에 맞게 수정(T40 부품 수용)



\*1)₩ 155,591



\*2)₩ 247,379



\*3)₩ 17,280

\*1)[https://ko.aliexpress.com/item/1005003957218716.html?spm=a2g0o.store\\_pc\\_groupList.8148356.16.2f8f217dHNvmDI&pdp\\_npi=2%40dis%21KRW%21%E2%82%A9%20199%2C476%21%E2%82%A9%20155%2C591%21%E2%82%A9%20199%2C476%21%21%21%21%40210318b816609739328445486ef592%2112000027565113768%21sh](https://ko.aliexpress.com/item/1005003957218716.html?spm=a2g0o.store_pc_groupList.8148356.16.2f8f217dHNvmDI&pdp_npi=2%40dis%21KRW%21%E2%82%A9%20199%2C476%21%E2%82%A9%20155%2C591%21%E2%82%A9%20199%2C476%21%21%21%21%40210318b816609739328445486ef592%2112000027565113768%21sh)

\*2) <https://ko.aliexpress.com/item/1005003903803040.html?gatewayAdapt=glo2kor>

\*3)[https://ko.aliexpress.com/item/1005003945581828.html?spm=a2g0o.pplist.product.2.23a1LAT2LAT2bO&pdp\\_npi=2%40dis%21KRW%21%E2%82%A9%2021%2C873%21%E2%82%A9%20173%21%21%21%21%21%402103221f16609831989276141eee35%2112000027531466173%21btf&t=pvid%3Ac0ee7da8-1dd5-49cc-b768-992b82c4ce04&afTraceInfo=1005003945581828\\_\\_pc\\_\\_pcBridgePPC\\_\\_xxxxx\\_\\_1660983199&gatewayAdapt=glo2kor](https://ko.aliexpress.com/item/1005003945581828.html?spm=a2g0o.pplist.product.2.23a1LAT2LAT2bO&pdp_npi=2%40dis%21KRW%21%E2%82%A9%2021%2C873%21%E2%82%A9%20173%21%21%21%21%21%402103221f16609831989276141eee35%2112000027531466173%21btf&t=pvid%3Ac0ee7da8-1dd5-49cc-b768-992b82c4ce04&afTraceInfo=1005003945581828__pc__pcBridgePPC__xxxxx__1660983199&gatewayAdapt=glo2kor)

□ 프레임- 탄소카본을 이용하고 필요시 알루미늄 가공



□ 폴딩가능한 구조로 고려



## □ 제작 가이드 4

1. 초음파 제어부
  - 압력펌프
  - 젤 토출
  - 거리/압력 측정센서
  - 틸팅회전
  - 거리조절 모터
2. 구동 제어부
  - 연료잔량
  - 엔진 점화
  - 과열/온도 확인
  - 상태 점검
3. 상태 점검부
  - 카메라로 확인
  - 센서값으로 확인
  - 배선확인.



데이터를 확인할 수 있도록 함.

호스트 컴퓨터에 전송

## □ 디자인구입

<https://www.turbosquid.com/ko/3d-models/3d-manned-drone-1914496>

<https://www.turbosquid.com/ko/3d-models/3d-4-model-1559976>

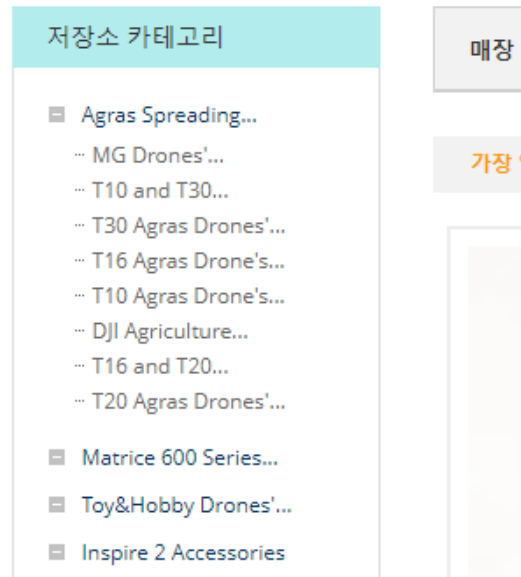
<https://www.turbosquid.com/ko/3d-models/3d-scalca-sprut-model-1468130>





## □ 부품구입

홈 > 매장 홈 > 제품 > T30 Agras Drones' Accessories



## T40 조금 기다려야 함.

[https://ko.aliexpress.com/store/group/T30-Agras-Drones-Accessories/912352901\\_10000002434892/3.html?spm=a2g0o.store\\_pc\\_groupList.8148361.3.52a54624KQqnWZ&origin=n&SortType=bestmatch\\_sort&g=y](https://ko.aliexpress.com/store/group/T30-Agras-Drones-Accessories/912352901_10000002434892/3.html?spm=a2g0o.store_pc_groupList.8148361.3.52a54624KQqnWZ&origin=n&SortType=bestmatch_sort&g=y)

[https://ko.aliexpress.com/item/1005003496690951.html?spm=a2g0o.detail.1000014.3.5ba56744dtywl0&gps-id=pcDetailBottomMoreOtherSeller&scm=1007.40000.267768.0&scm\\_id=1007.40000.267768.0&scm-url=1007.40000.267768.0&pvid=a8a6abeb-020d-4866-bc32-e3307c1ca513&t=gps-id:pcDetailBottomMoreOtherSeller,scm-url:1007.40000.267768.0,pvid:a8a6abeb-020d-4866-bc32-e3307c1ca513,tpp\\_buckets:668%232846%238115%23890&pdp\\_ext\\_f=%7B%22sku\\_id%22%3A%2212000026057555998%22%2C%22sceneId%22%3A%2230050%22%7D&pdp\\_npi=2%40dis%21KRW%212440299.0%211220150.0%21%21%21%21%402103221f16609829426183910eee35%2112000026057555998%21rec](https://ko.aliexpress.com/item/1005003496690951.html?spm=a2g0o.detail.1000014.3.5ba56744dtywl0&gps-id=pcDetailBottomMoreOtherSeller&scm=1007.40000.267768.0&scm_id=1007.40000.267768.0&scm-url=1007.40000.267768.0&pvid=a8a6abeb-020d-4866-bc32-e3307c1ca513&t=gps-id:pcDetailBottomMoreOtherSeller,scm-url:1007.40000.267768.0,pvid:a8a6abeb-020d-4866-bc32-e3307c1ca513,tpp_buckets:668%232846%238115%23890&pdp_ext_f=%7B%22sku_id%22%3A%2212000026057555998%22%2C%22sceneId%22%3A%2230050%22%7D&pdp_npi=2%40dis%21KRW%212440299.0%211220150.0%21%21%21%21%402103221f16609829426183910eee35%2112000026057555998%21rec)

### Smart and Efficient

FOC (sine wave) ESCs are default match for the arm sets. The efficient, accurate and stable motor control from intelligent algorithm meets the demand of various applications.  
(T40/T40P square wave ESCs are available for custom arm sets)



<https://volatusdrones.com/collections/matrice-300-rtk-parts>

### Convenient installation

Free of complicated mounting process



https://www.aliexpress.com/item/1005002461292335.html?spm=a2g0o.detail.1000013.1.64b5538ewseCP6&gps-id=pcDetailBottomMoreThisSeller&scm=1007.13339.300834.0&scm\_id=1007.13339.300834.0&scm-url=1007.13339.300834.0&pvid=ff0728ba-380a-4c90-9809-fb5985c3a8b2&t=gps-id:pcDetailBottomMoreThisSeller,scm-url:1007.13339.300834.0,pvid:ff0728ba-380a-4c90-9809-fb5985c3a8b2,pp\_buckets:668%232846%238115%232000&pdp\_ext\_f=%7B%22sku\_id%22%3A%2212000020737329433%22%2C%22sceneId%22%3A%223339%22%7D&pdp\_npi=2%40dis%21KRW%2125989.0%2120274.0%21%21%21%21%21%402101f6ba16609842426093315e1a8e%2112000020737329433%21rec



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Colour: Left right



Quantity:

- 1 + Only 1 left

Ships to Korea

Shipping: ₩ 4,156

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Estimated delivery on Sep 03

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