

IKM - Muligheter i markedet:



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IKM Gruppen

INSTRUMENT / AUTOMASJON / INSPEKSJON

IKM Industrigravøren AS

(Bryne)

IKM Inspection AS

(Larvik)
Avd. Arendal
Avd. Brevik
Avd. Drammen
Avd. Fredrikstad
Avd. Grimstad
Avd. Kristiansand
Avd. Sandnes
Avd. Tønsberg

IKM Instrutek AS

(Larvik) (90,2%)
Avd. Sola
Avd. Bergen
Avd. Ålesund

IKM Laboratorium AS

(Tananger) (90,2%)
Avd. Bergen
Avd. Sola
Avd. Larvik
Avd. Oslo
Avd. Raufoss

IKM Measurement Services

Australia Pte. Ltd.
(Perth) (90,2%)

TESTING / FERDIGSTILLELSE

IKM Testing AS

(Sola)
Avd. Bergen
Avd. Kristiansund
Avd. Hammerfest

IKM Testing Asia Pte. Ltd

(Singapore)

IKM Testing Australia Pty. Ltd

(Perth)

IKM Testing Brasil LTDA

(Serra)

IKM Testing Canada Ltd

(St. Johns)
Avd. Halifax

IKM Testing Korea LLC

(Busan)

IKM Testing Malaysia Sdn. Bhd

(Kuala Lumpur)

IKM Testing Poland Sp. z o.o.

(Gdynia)

IKM Testing Thailand Co. Ltd

(Rayong)

IKM Testing UK Ltd

(Newcastle)
Avd. Aberdeen

PT IKM Indonesia

(Batam)
Avd. Jakarta

ENGINEERING / OPERATIONS

IKM Acona AS

(Stavanger) (84,6%)

IKM Consultants AS

(Sola)
Avd. Bergen
Avd. Oslo

IKM Consultants UK Ltd

(Aberdeen)

IKM dsc Engineering AS

(Oslo)

IKM HVAC AS

(Sandnes) (74%)

IKM HVAC Production Sp. z.o.o.

(Elblag) (70,6%)

IKM Kran og Løfteteknikk AS

(Tananger)
Avd. Sandnessjøen

IKM Tech Team Solutions AS

(Tananger)

IKM Ocean Design AS

(Sandnes) (88%)
Avd. Trondheim
Avd. Oslo

IKM Operations AS

(Sola)

IKM Rada AS

(Bergen) (53%)

IKM SolidTech AS

(Kristiansund) (70%)

ELEKTRO / RIGG NEDIHULLSTJENESTER

IKM C6 Technologies

(Sola)

IKM Elektro AS

(Sola) (90,2%)
Avd. Hammerfest

IKM Hydraulic Services AS

(Sola) (90,2%)

IKM Mooring Services AS

(Sola)
Avd. Skipavika

IKM Production Technology AS

(Sola) (90,2%)

IKM Production Technology UK Ltd

(Aberdeen) (90,2%)

SUBSEA / FORNYBAR

IKM Subsea AS

(Bryne)

IKM Subsea Brasil LTDA

(Serra)

IKM Subsea Malaysia Sdn. Bhd

(Kuala Lumpur)

IKM Subsea Middle East DMCC

(Dubai)

IKM Subsea Singapore Pte. Ltd

(Singapore)

IKM Subsea UK Ltd

(Aberdeen)

IKM Subsea Motor Solutions AS

(Bryne)

IKM InWind AS

(Sola)

INDUSTRIELLE / FINANSIELLE AKTIVITETER

Enhanced Well Technologies Group AS

(Straume) (16,8%)

ComTrac AS

(Sola) (50%)

Norsk Solar AS

(Stavanger) (0,3%)

GNT Solutions AS

(Nærbø) (34%)

Green Minerals AS

(Bergen) (2%)

Flexible Floating Systems AS

(Randaberg) (16,6%)

Stavanger Mekaniske AS

(Stavanger)

IKM Invest

IKM EIENDOM AS / IKM INDUSTRI-INVEST AS

50 kontorer i Norge

Rogaland

SOLA

IKM Gruppen AS (hovedkontor)
IKM Consultants
IKM Elektro
IKM Hydraulic Services
IKM HVAC
IKM Instrutek
IKM InWind
IKM Laboratorium
IKM Mooring Services
IKM Operations
IKM Production Technology
IKM Testing
IKM C6 Technologies

TANANGER

IKM Laboratorium
IKM Kran og Løfteteknikk
IKM Tech Team Solutions

SANDNES

IKM Inspection
IKM Ocean Design

STAVANGER

IKM Acona

BRYNE

IKM Industrigravøren
IKM Subsea
IKM Subsea Motor Solutions

Resten av Norge

HAMMERFEST

IKM Testing
IKM Elektro

SANDNESSJØEN

IKM Kran og Løfteteknikk

TRONDHEIM

IKM Ocean Design

KRISTIANSUND

IKM Testing
IKM SolidTech

ÅLESUND

IKM Instrutek

BERGEN

IKM Laboratorium
IKM Instrutek
IKM Testing
IKM Consultants
IKM Rada

KRISTIANSAND

IKM Inspection
IKM WME

GRIMSTAD

IKM Inspection

BREVIK

IKM Inspection

ARENDAL

IKM Inspection

LARVIK

IKM Instrutek
IKM Inspection
IKM Laboratorium

DRAMMEN

IKM Inspection

FREDRIKSTAD

IKM Inspection

OSLO

IKM Consultants
IKM dsc Engineering
IKM Laboratorium
IKM Ocean Design

TØNSBERG

IKM Inspection

RAUFOSS

IKM Laboratorium

Kontorer i 11 land

Americas

Canada

IKM Testing Canada

Brasil

IKM Testing Brasil
IKM Subsea Brasil

Europe

UK

IKM Consultants UK
IKM Production Technology UK
IKM Testing UK
IKM Subsea UK

Polen

IKM Testing Poland
IKM HVAC Production

Asia-Pacific

Australia

IKM Testing Australia
IKM Measurement Services

Indonesia

PT IKM Indonesia

Korea

IKM Testing Korea

Malaysia

IKM Testing Malaysia
IKM Subsea Malaysia

Singapore

IKM Testing Singapore
IKM Subsea Singapore

Thailand

IKM Testing Thailand

UAE

IKM Subsea Middle East

En komplett tjenesteleverandør til energisektoren

Topside
nybygg



Topside
drift & vedlikehold



Subsea
nybygg



Subsea
drift & vedlikehold



Landanlegg /
terminaler



Brønn / nedihull / rigg



Maritimt / verft



Industri / havbruk /
samferdsel /
offentlig sektor



Fjerning / nedstengning
/ decommissioning



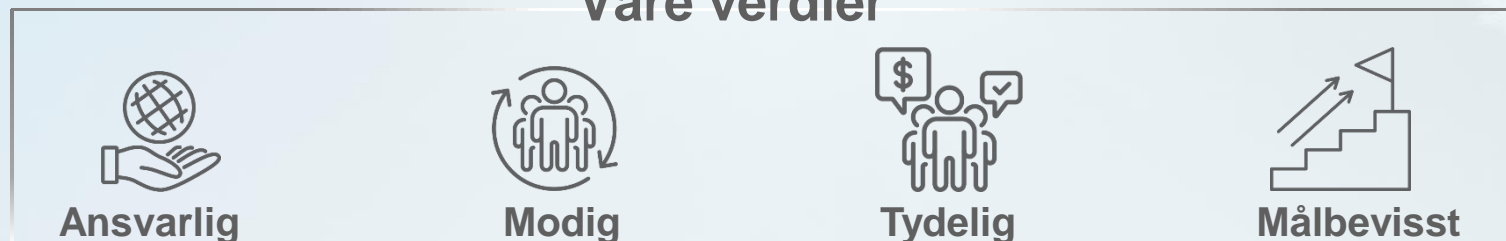
Energi / fornybar



Vår visjon

Vi skal være den største, mest komplette og mest konkurransedyktige tjenesteleverandøren innen energisektoren

Våre verdier



Våre rammebetingelser



FNs bærekraftsmål og IKMs forpliktelser

Vi vil bidra aktivt for å være med på å nå FNs bærekraftsmål mot 2030!



Vi har prioritert sju målsetninger der vi tror IKM kan være med på å gjøre en forskjell.

Zero injuries - an overall objective!



IKM TESTING – SERVICES



Mechanical Completion

- Nitrogen Services
- Pressure Testing
- Hot oil flushing
- Chemical Cleaning
- Bolt Tensioning
- Preservation



Maintenance / Certification

- Composite repair
- Hot Bolting
- Certification accumulators
- Maintenance heat exchangers
- HVAC cleaning and inspection



On-site machining / Cutting

- Flange Facing
- Plan- / Key Milling
- Hole- Line Boring
- Mechanical cutting
- Diamond wire cutting
- Abrasive waterjet cutting

Revising/Adding services



Pipeline Subsea services

- Pigging
- Flushing
- Leak testing
- Dewatering
- Gel filling / waxing
- Umbilical testing



Well Services

- Cuttings Transport
- Nitrogen lifting
- Well Integrity Testing
- Scale Inhibitor Squeeze
- Acid Stimulation Services
- Temporary Water injection



Decommissioning / removal

- Cleaning
- Passivation
- Cutting

IKM TESTING – SERVICES



Cleaning

- Cleaning in place (CIP)
- High Pressure Cleaning
- Tank cleaning
- Vacuum cleaning
- LRA / NORM handling



Inspection

- Video Inspection
- Tank inspection without entry
- Inspection Pressurized systems
- **Drone / UAV inspection**



Training Courses

- Bolt tensioning (NS-EN 1591)
- Valves
- Pressure testing
- Tailor made courses

Revising/Adding
services



PRESERVATION

- Engineering
- Project management
- Preservation Lead
- Supply of Materials
- Site survey
- Planning
- Execution on site
- Documentation/Reporting

Rental

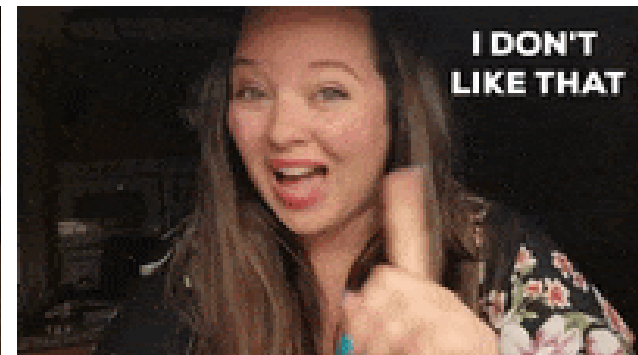
- Pumps and tanks
- Inspection equipment
- Bolt working equipment
- Flanges and plugs
- Air compressors
- Test equipment
- Hydraulic hose reels
- Hot Water cleaners

Mulighetene i markedet
Teknologien
Kompetansen
Regelverket



Muligheter/Marked

- Oppsider
- «Show Stoppere»



Oppsider

- Sikkerhet - Utstyret tar risikoen - gjør jobben..ikke menneske
- Effektivitet - Erfaring – 20% av tiden
- Kost – 20- 30% av konvensjonell kost





Zero injuries - an overall objective!



I·K·M

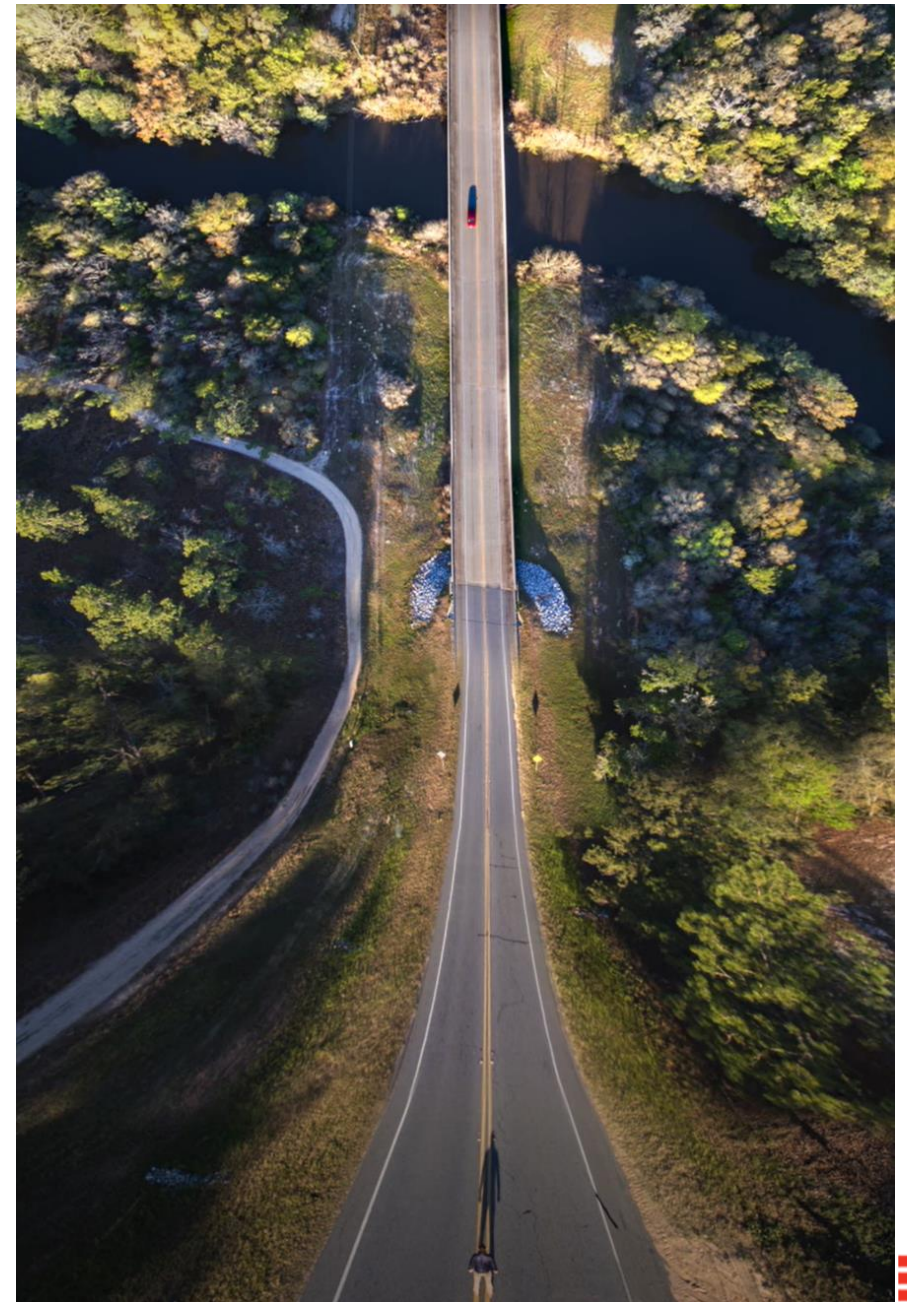
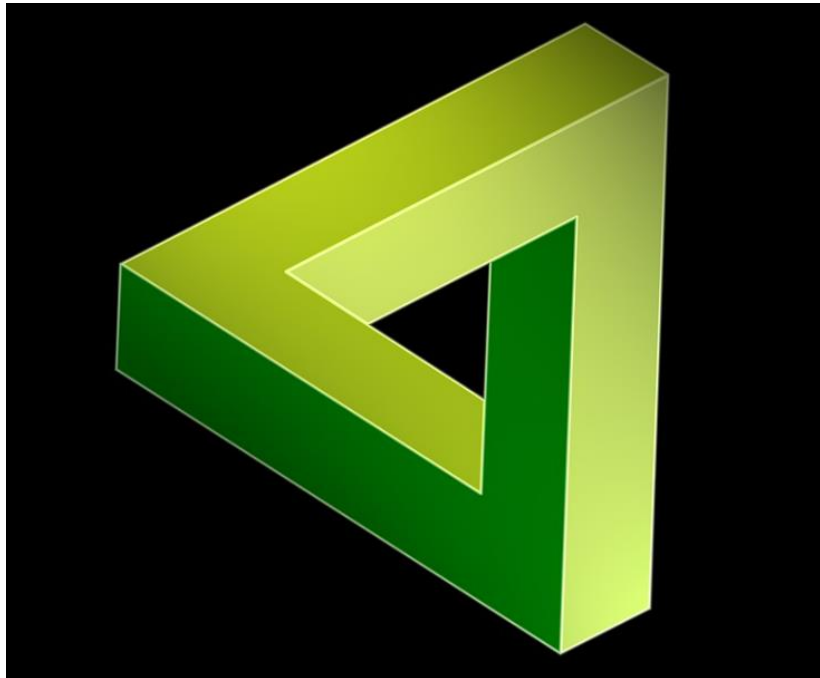


Zero injuries - an overall objective!



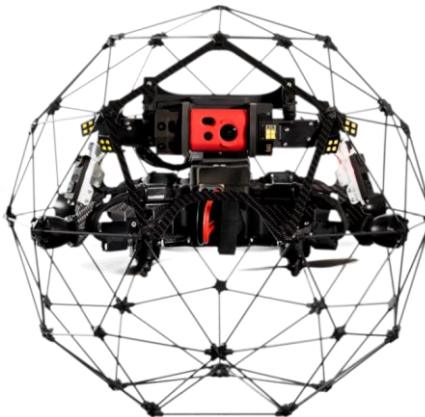
Show Stoppere

- Kunnskap hos brukere (mulighetene)
- Konvensjonell tankegang
- Mangelfulle kvalitets krav hos slutt kunder
- Regelverket – Hva gjelder
- Disruptiv metode/Teknologi – Endring



Drone Inspeksjoner ifm Stanser/Inspeksjon

- Godt implementert [tjeneste](#)
- Hurtig utvikling – Bytter Droner fortløpende
- Nå er semi-autonomitet mulig
- Får dette inn som en standard.
- Investerer fortløpende
- Utdanner ved behov (Økende)



TECHNICAL SPECIFICATION – Drone Inspection System

Version: 2020-09-04

Scout 137 Drone

Drone platform with 4K camera and 3D LIDAR for safe navigation in confined spaces



40m Tether Cable

Provides unlimited flight time and video streaming with high bandwidth



Bluetooth Controller

For easy drone maneuvering

Ground Station

Ruggedized unit regulate input power and provide data link to the drone



Ruggedized Tablet

Samsung Galaxy Tab Pro with Scout Ground Control app installed for data streaming

Droner – Ny teknologi

- Vi har implementert ny Tethered Drone.
- Dronen er av typen Scout 137, utrustet med lidar (sensorer for 3D modellering) og beregnet for innvendig flyging i tanker og hulrom
- Dronen er utviklet i Norge og utrustet med umbilical/ navlestreng som både håndterer datasignaler til/fra dronen og kontinuerlig strøm som gir ubegrenset flytid
- **Innvendig flyging er ikke i kommersielt «Luftrom»!!**

Scout 137 Drone

Drone platform with 4K camera and 3D LiDAR for safe navigation in confined spaces



40m Tether Cable

Provides unlimited flight time and video streaming with high bandwidth



Bluetooth Controller

For easy drone maneuvering

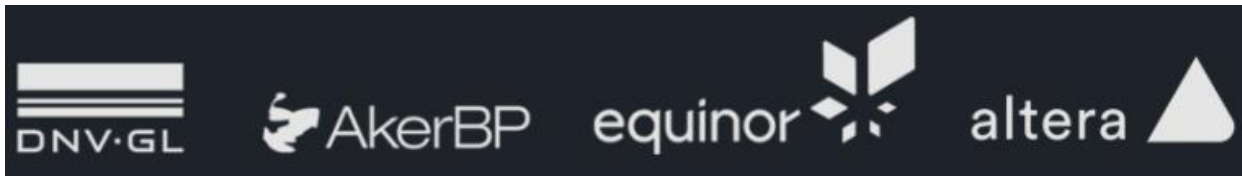
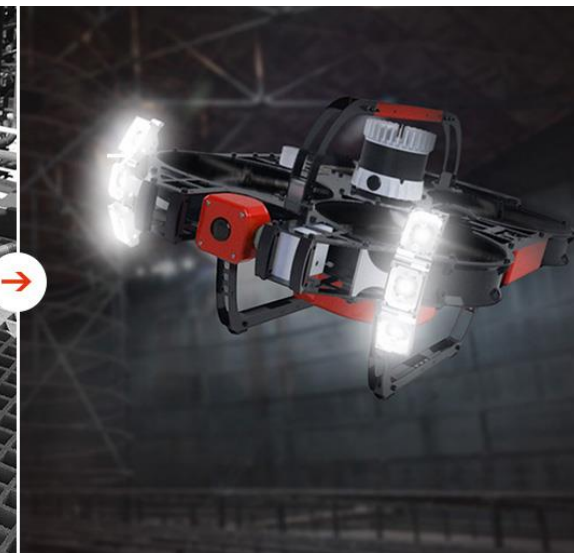
Ground Station

Ruggedized unit regulate input power and provide data link to the drone



Ruggedized Tablet

Samsung Galaxy Tab Pro with Scout Ground Control app installed for data streaming



Lidar/Fotogrammetri – 3D Modeller?

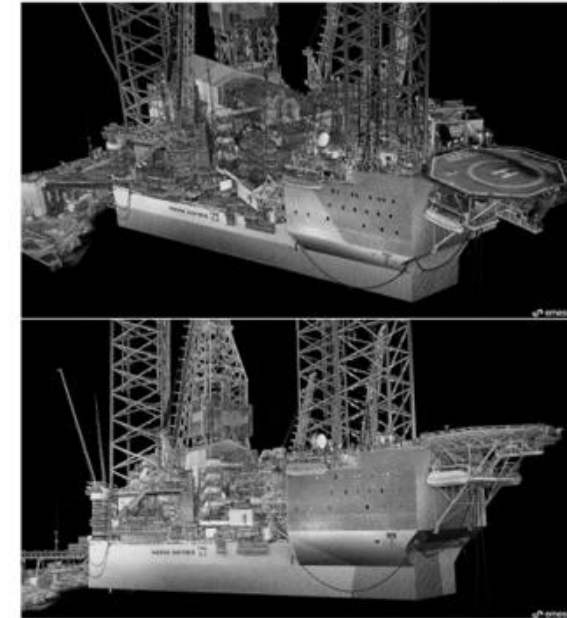
■ HOVERMAP- Integrert tjeneste

«Mål»:

LiDAR/3D modell av et så nøyaktig objekt som mulig for å legge på, eller inn i eksisterende 3D modell. Og å kunne "sette inn" funn referanser i denne modellen med link til detaljert foto/video samt dokumentasjon/rapporter.

Andre "funn" kan også i fremtiden være fremmed objekter (Fallende gjenstander). Ikke bare oppdatering av 3D modellene.

Utrolig mye raskere enn konvensjonell metode!!



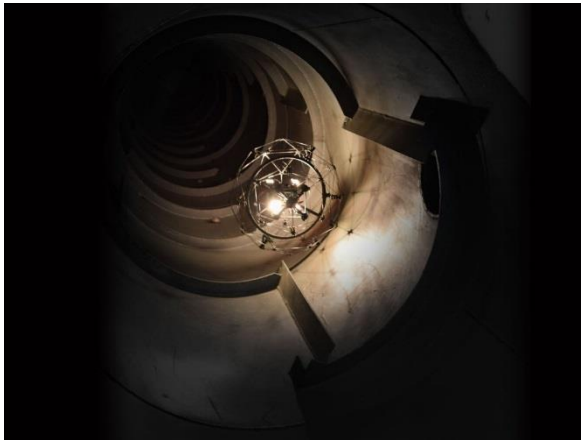
Oppmåling- Kartlegging - Inspeksjon



Zero injuries - an overall objective!

ELIOS 2

- Veldig stabil innendørs
- Film/Bilder uten «gitter»
- Hyllevare Komp – tilpasses til formål
- 3 separate lyskilder
- Posisjonerings sensorer -> 3D modeller/Punktsky
- Avstands «hold»
- Høyere Temp toleranse (65`C)



Matrice 300 RTK – (første i Norge)

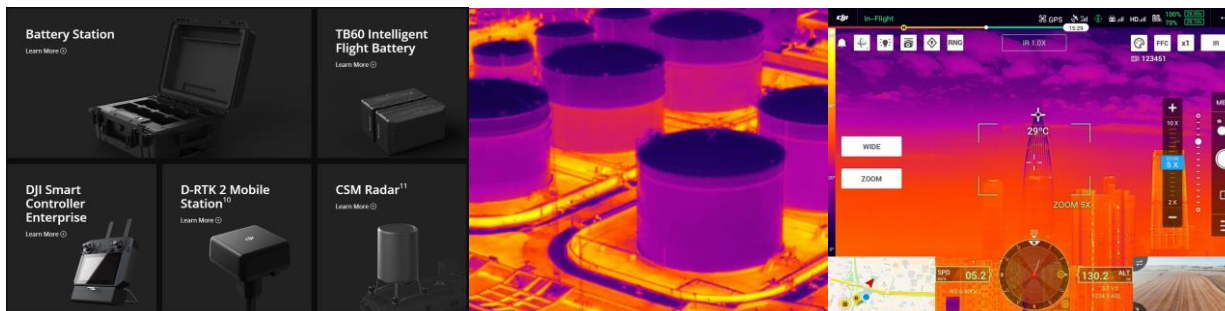
- Trygg navigering også under dekk
- Sensorer i 6 retninger
- 20 MP med 23 x zoom
- Opptill 50 min flytid
- Dual kontroll mulighet
- IP45-rating
- Vind: 15 m/s (30 knop)
- Temperatur: -20C til 50C
- Foto/Video/termografi



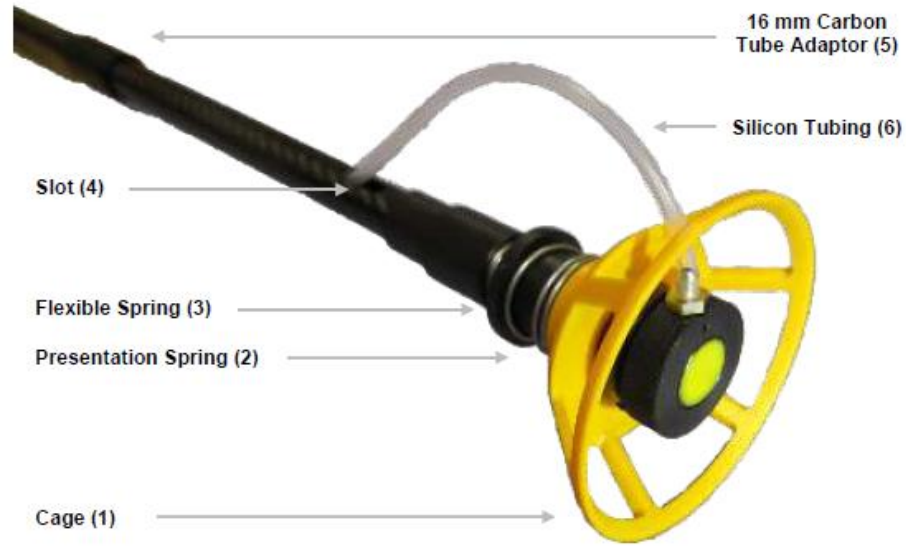
Payload (H20T): 20MP, 23x Optisk Zoom, 200x Hybrid Zoom, Radiometrisk termografi.

Payload (Z15 LED): 48 watt LED spot, opptil 150 meter rekkevidde

- Anti kollisjonssensorer i 6 retninger (Forward/Backward/Left/Right: 0.7-40m Upward/Downward: 0.6-30m)
- 2 kontroller – muliggjør for 2 piloter som kan veksle på kontrollen avhengig av Asset
- Kryptert trippel videooverføring
- Opptil tre payloader samtidig (2 ned, 1 opp)
- Algoritme for nødlanding med 3 motorer
- Mulighet for CSM Radar (For an added safety measure, a Circular Scanning Millimeter-Wave (CSM) Radar with a detection range between 1 to 30 m can be mounted on top of the aircraft.)(Ikke lansert enda)
- AirSense ADS-B Reciver
- Klargjort for AI
- Repeterbar inspeksjon («Husker flyrute og kameravinkler» - kun faste installasjoner)



Multigauge 6500 UT- Drone



Specifications

Configuration	Octocopter
Weight	2 Kg Dry / 3Kg AUV / 4Kg MTOW
Dimensions (from motor to motor)	Length: 33 cm / Width: 36.5 cm
Operating Voltage	14.8V Nominal
Battery Type	LiPo 4S (4 cell)
Motors	8 x T-Motor 2212-18 920KV
Motor Redundancy	Yes
Propeller Size	9"
Propeller Type	Folding - Ready to use from the carry case
Flight Time	12 - 18 minutes - Depending on Charge
Pilot Controller	DJI Lightbridge 2 Model GL858A with Tablet Mount
Drone Flight Controller	DJI N3 with DJI Lightbridge 2 Connectivity for Video + Transmission Link
Operating Frequency	2.4 GHz - 5.8 GHz
Control Range	2 Km
Autonomous Flight	Yes
GPS Positioning	Yes
Altitude Control	Yes
Camera	1080p with Recording Function to SD Card
Video Link	720p Streaming to Pilot
Monitor	10.1" Android Tablet (Included)
Propeller Guard	Yes
Weather	Dry / Light Rain
Service	150 Hours - Includes full Motor Replacement and Integrity Check

Kit Contents (Drone Only):

- 1 x Drone
- 10 x Propellers (including 2 spares)
- 1 x Set of Batteries (2 batteries)
- 1 x Charger + Required Leads and Charge Bag
- 2 x Propeller Guards
- 1 x Allen Key Set
- 1 x Instruction Manual
- 1 x Tablet
- 1 x RC Controller + Tablet Mount
- 1 x Battery Checker



Inspeksjon av væskefylte «tanker»/rør.

- «Hylleware» utstyr
- Tilleggskompetanse hos mobilisert personell
- Del av flerfaglig utførelse/lag



ROV	Dimension	383 mm*331 mm*143 mm (15 in*13 in*5.6 in)	Camera	Camera	Sensor	1/2.3" SONY CMOS
	Weight	3.9 kg (8.6 lb)		Effective Pixels	12MP	
	Thrusters	6 (4*Vector + 2*Horizontal)		ISO Range	100-6400 in Auto / Manual	
	Maneuverability/DOF (Degree of Freedom):	Moving left & right, up & down, forward & backward, Rotation: 360° pitch, 360° rot, 360° yaw		Field of View	166°	
				Aperature	1/2.5	
				Minimum	0.4m	
				Focusing	Distance	
				Electronic Shutter Speed	5-1/1000 second	
				Burst shooting	1 / 3 / 5 / 7 / 10 frames	
				White Balance	2500K - 8000K	
				(WB)	Auto / Manual	
				Exposure	-3 EV - +3 EV	
				Compensation		
				Photo Resolution	4:3 4000 x 3000	
				Photo format	JPEG, DNG	
				Video Resolution	4K UHD, 25/30 fps	
				1080P FHD	25/30/50/60/100/120 fps	
				720P HD	25/30/50/60/100/120/200/240 fps	
				Video format	MPEG4-AVC/H.264, HEVC/H.265	
				Stabilization	ES (Electronic Image Stabilization)	
				Internal Storage	64 GB standard	
				LED Beams	Brightness	4000 lumen
				CCF	5500 K (Generated Color Temperature)	
				Beam Angle	120°	
				Dimming	3	
Remote Controller	Wireless	WiFi supported	Charger/AC Adapter	ROV	Input: 100-240 V, 50/60 Hz, 1.3 A MAX	
	Battery Life	Up to 4 hours		IC	Output: 12.9 V - 6A	
	Copy & Download	Micro SD card slot			Input: 100-240 V, 50/60 Hz, 0.5 A MAX	
		Format in FAT32 (no greater than 32GB)			Output: 5 V - 3A	
		Format in EXFAT (no greater than 64GB)		Spool	Dimension	
Tether	Length	Standard 100 m (328 ft) on Spool		Foldable handle		
	Breaking Force	Customized Accepted		Capacity	Hold up to 100 m tether (328ft)	
		80 kgf				
APP	System	iOS 10.0.0 or later				
		Compatible with iPhone 6S or later				
		Android 5.0 or later				
		Compatible with Samsung S7 or later, Huawei Mate 9 or later, Mi Mix 2 or later				
	UVS-Streaming	720P, 25/30fps				
		480P, 25/30fps				
	Stream User NO	Max 2 Devices				

BIKE Platform

- Ultra kompakt robotplattform
- Flere sensor valg
- 2 integrerte inspeksjon/navigasjons kamera
- 4 Magnetiske hjul
- Veldig manøvrerbar
- Kan forsere mindre hinder
- Simulator snart klar
- Kan identifisere funn opp mot 3D modell (Posisjonering)



Digital Worker/Nettbrett

IKM TESTING AS

- IKM Testing AS jobber med en løsning for hvor vi blant annet kan digitalisere alle sjekklister, prosedyrer og jobbkort som benyttes i forbindelse med våre tjenester. Dvs., all innhenting/utfylling av data gjøres digitalt ved bruk av smarttelefon og tablets og linkes opp mot vårt ERP system og prosjekt.
- MOC håndtering vil gjøres digitalt i felt
- All dokumentasjon vil lagres direkte



**Takk for
oppmerksomheten!**



Zero injuries - an overall objective!

