

HIGH TORQUE DENSITY

# Archimedes Drive

THE ADVANCED ROBOTICS ENABLER



By  IMSystems

# Archimedes Drive

Inspired by the effortless motion of the body's synovial joints, the Archimedes Drive **Synovial Series** delivers high torque density and true zero backlash. The Synovial Series achieves extremely precise and smooth power transfer. It's the perfect fit for advanced robotics applications, including humanoids, exoskeletons, and medical equipment.

## HIGH STIFFNESS

*Robust, accurate, and transparent*

## TRUE ZERO BACKLASH

*Continuous contact between components*

## HIGH TORQUE DENSITY

*Optimized rolling components*

## QUIET

*36 dB(A)*

## BACKDRIVABLE

*Safe and reliable*

## OVERTORQUE PROTECTION

*Resilient against shocks, collisions, and vibrations*



## DISCOVER THE ARCHIMEDES DRIVE

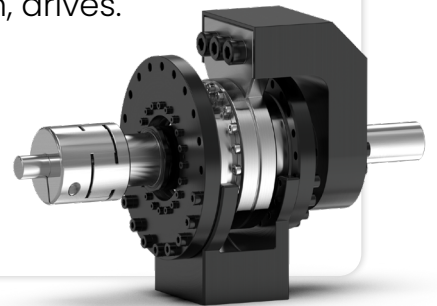
*Working Principle Explainer Video*

# SYNOVIAL SERIES

## DEVELOPMENT KIT

Developed for leading innovators. This ready-to-test kit includes a Synovial-75 with an optional output encoder and a specially designed R&D housing, perfect for exploring the core features of the Archimedes Drive: true zero backlash, inherent overtorque protection, and smooth, transparent operation. A low key opportunity to test our cutting-edge technology with confidence, backed by IMSystems' dedicated support. The goal: accelerate innovation development faster with cutting edge, true zero backlash, drives.

- > 75Nm Repeated Torque
- > True Zero Backlash
- > Low Noise
- > 0.3 arcmin. Lost Motion
- > High Stiffness
- > Ready to Test



## COMPONENT SET

Designed with your next innovation in mind. While IMSystems supplies the core Archimedes Drive technology, you bring your vision to life by designing the custom housing and selecting the motor, we handle the assembly and provide full technical support throughout the process. Result: delivering an extremely precise, quiet, high-torque-density actuator. Tailored perfectly to your needs with optimum lead times.

- > High Torque Density
- > True Zero Backlash
- > Low Noise
- > Overtorque Protection
- > Smooth and accurate motions
- > Optimized for your needs



## EXTREME DUTY DRIVES

Need a drive for extreme duty applications?

- > Extended Lifetime
- > Low Noise
- > True Zero Backlash
- > Unmatched Torsional Stiffness
- > Resilient Against Shockloads
- > Now Available for Purchase

**LEARN MORE**



*About the Extreme Duty Drives by IMSystems*

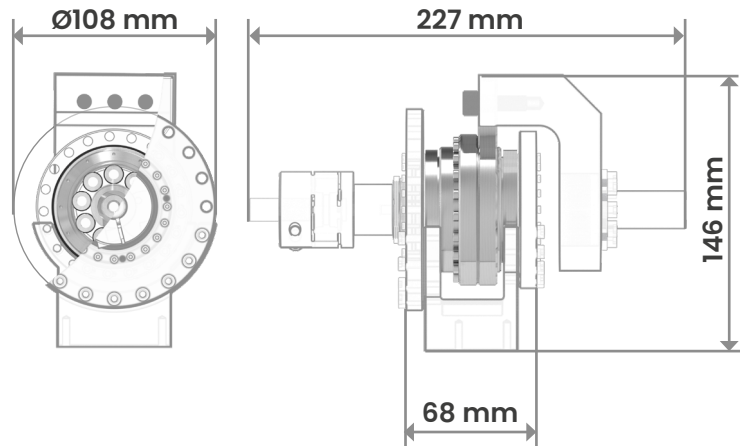


# DEVELOPMENT KIT

EXPERIENCE THE POWER OF ARCHIMEDES DRIVE

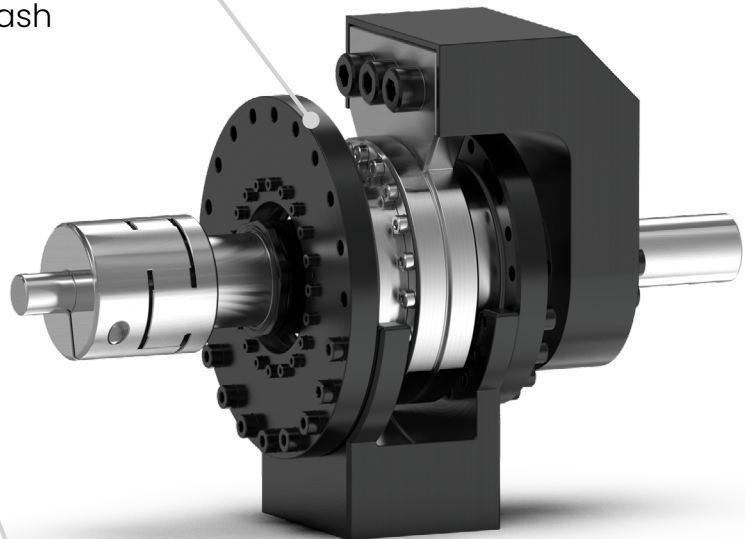
## THE KIT

- > Ready-to-test kit includes a Synovial-75 Archimedes Drive with an optional output encoder
- > Specially designed R&D housing, perfect for exploring the core features of the Archimedes Drive



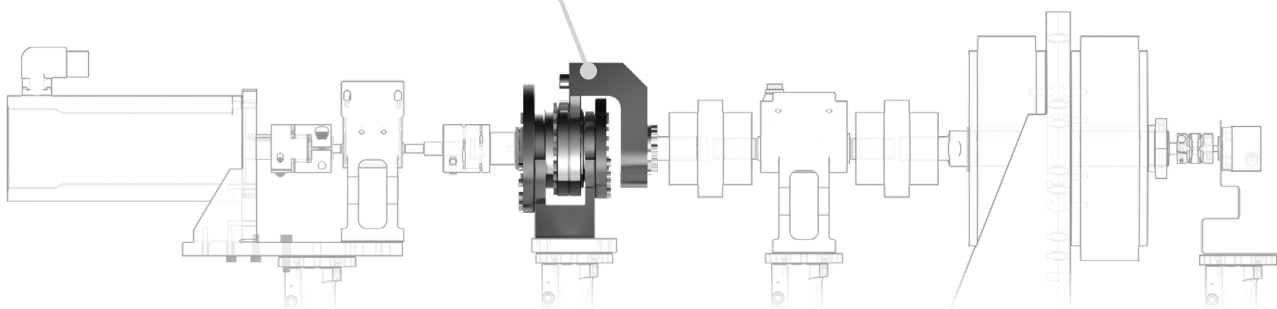
## INNOVATION KICKSTARTER

- > Quick Tech Validation
- > Experience True Zero Backlash
- > Low Noise
- > IMSystems Support
- > Easy to install



## CONFIGURATION

- > IMSystems provides assembled drive and mounting with an optional output encoder



EXAMPLE TESTBED

**LEARN MORE & GET IN TOUCH**

About the Development Kit

# COMPONENT SET

DESIGNED FOR NEXT-GEN ROBOTICS

## 1. COMPONENT SET

- > IMSystems provides the core technology
- > IMSystems provides technical drawings and development support

## 2. MOTOR SELECTION

- > Client provides motor with support from IMSystems

## 3. HOUSING DESIGN

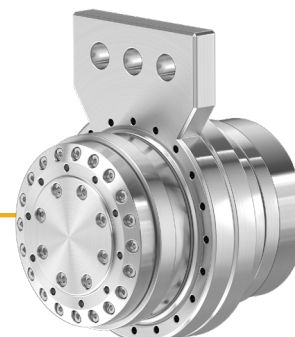
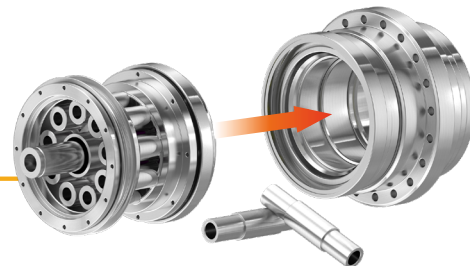
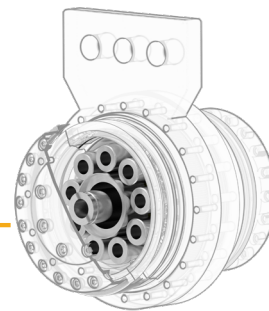
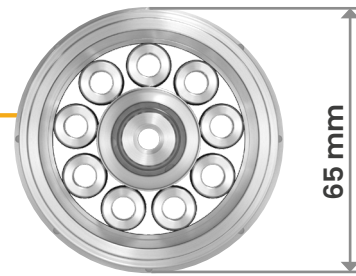
- > IMSystems and Client collaborate on housing design

## 4. DRIVE ASSEMBLY

- > IMSystems assembles all the parts into a complete drive and performs quality checks

## 5. COMPLETE DRIVE

- > Zero Backlash
- > High Torque Density
- > Tailored Design



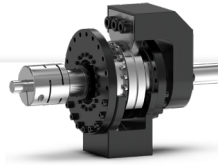
*\*Conceptual result*

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About the Component Set



# SYNOVIAL-75 DATA SHEET



	Unit	DEVELOPMENT KIT	COMPONENT SET
Repeated Torque	Nm	75	75
Slip Torque	Nm	88	88
Nominal Torque	Nm	20	20
Backlash	arcmin	0	0
Max. Lost Motion	arcmin	0.3	0.3
Torsional Stiffness	Nm/arcmin	15	15
Max. Input Speed	rpm	>8,000	>8,000
Average Input Speed	rpm	4,000	4,000
Reduction Ratio	{-}	70:1	70:1
Noise Level	dBA	36	36
Output Rotation	deg.	200	continuous
Diameter	mm	108	65
Length	mm	226	53
Weight	kg	4	0.76
Ambiant Temperature Range	°C	-20 to 60	-20 to 60
Backdrivable	Y/N	Yes	Yes
Lubrication	Cycles	For life	For life
Output Cycles Service Life	Million	7	7

## NOTES

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START INNOVATING

**CONTACT SALES**



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