

Test Systems since last 22 Years

SERVOCONTROLS INVOLVED IN DESIGN AND DEVELOPMENT OF VARIOUS TYPES OF TEST RIGS AS PER SAE Standards/MIL Standards/J55555/CEMILAC/BOEING etc.



APPLICATIONS :

- Material Testing (UTM/CTM /Tensile)
- Structural Testing
- Fatigue, Endurance & Lifecycle testing
- Qualification Testing
- Performance Testing
- Evaluation Testing
- Actuation Systems
- Proof, Impulse and Burst Pressure Testing

MARKETS

- Automotive
- Aerospace
- Material Testing
- Civil & Construction

IN HOUSE FACILITIES

- Mechanical / Electronics / Electrical design departments.
- State of the Art 2/3/5/ axes machine Shop,/EDM/Grinding / Honing, Laser Welding / Resistance Welding.
- Clean Room Facility for Hydraulics & Electromechanical Systems
- Assembly and Test Shop
- Fabrication and Paint Shop
- Metrology Lab
- Servo lab
- Servo valve / Proportional Valve and Sensor Repair Centre

Machine Shop

German and Swiss Make Machines



Quality Control/Inspection Room

with CMM & Contour



Performance Test Rig

Designed for Primary and Secondary Flight control actuator performance evaluation after assembly. The test rig is designed for testing Airbus A320 and Boeing 787 Power Door Opening System Actuator.



Qualification Test Rig

Designed / MFG / Assembly at Testing of Electro Hydraulic Systems with Servocontrollers & DAQ for leading Aerospace company at servocontrols Facility Belagavi in 2019



Proof & Burst pressure Test rigs

Designed to test and evaluate Proof & Burst pressure ratings of various hydraulic components like accumulators, reservoirs, hoses used in in Aerospace, Automotive and Railway applications. The system can also be built with water glycol based fluid.



Component Fatigue, Endurance & Life cycle Test rigs

Designed to test and evaluate component fatigue Endurance and Life cycle of the components typically used in Automotive, Aerospace and Railway applications.



DYNAMIC SERVO ACTUATOR

TEMPOSONIC POSITION SENSOR

STROKE: 50mm TO 300mm

OUTPUT: $\pm 10V$, 4-20mA, DIGITAL SSI

OVERLOAD

PROTECTION VALVE

SERVO VALVE

FLOW: 4LPM TO 230LPM

FATIGUE RATE LOAD CELL

RANGE: 5KN TO 450KN

REAR ROD EYE END

ACTUATOR

STROKE: 50mm TO 300mm

FORCE: 5KN TO 250KN

FRONT ROD EYE END

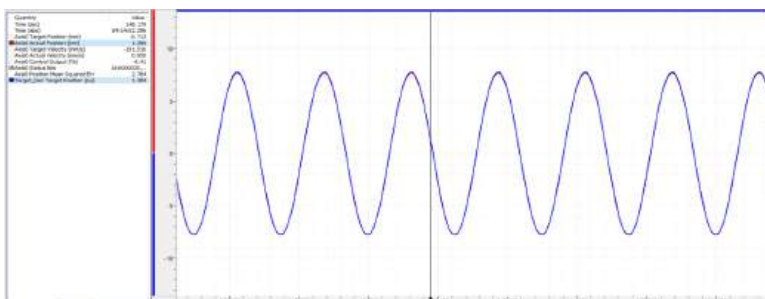
Fatigue rated high frequency, low friction servo actuators of capacity ranging from 5KN to 250KN with Servo valve, Load cell and position sensor

These are fatigue rated force generators designed for short stroke and high dynamic applications, compatible with LVDT / Tempsonic magnetostrictive position feedback and control components. These actuators provide precise performance ideal for frequency tests and simulation applications. These are flexible enough to meet all your force and motion control needs. The actuators are available in different force ratings, both in standard lengths and made to order custom lengths.

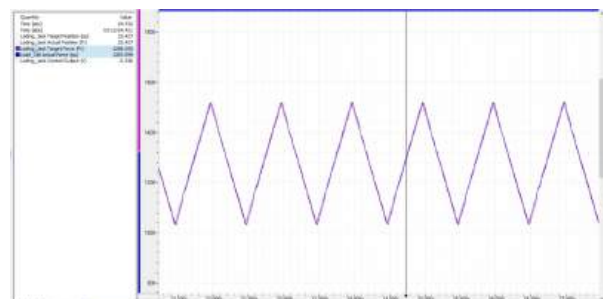
FEATURES :

- FORCE RATING : 5KN TO 250KN
- STROKE : 50mm TO 300mm
- VELOCITY : UP TO 3m/s
- FREQUENCY : 0.1Hz TO 30Hz
- WORKING PRESSURE : 210 BAR / 315 BAR
- MOUNTING : FRONT/ REAR FLANGE MOUNTING
- END CONNECTION : MALE/FEMALE THREADS,
- POSITION SENSOR : BUILT IN TEMPOSONIC SENSOR
- SERVO VALVE OPTION : 4LPM TO 230LPM
- LOAD CELL OPTION : FATIGUE RATED LOAD CELL
- OILMEDIA : ISO-VG-46/68, MIL-5606H, SKYDROL
- SEALS: NITRILE / VITON
- TESTED AS PER IS-10585-2002
- TEST PRESSURE : 315 BAR

FRONT/REAR ROD EYE ENDS



Cyclic Amplitude @ 30Hz



Force Impulse

SERVO ACTUATORS

25KN Servo Actuator



Cylinder Capacity	+/-25kN @ 210 bar
Cylinder Bore	70mm
Cylinder Rod	45mm(Double ended)
Stroke	200mm
End Cushioning	20mm at both ends
Load cell	+/-25KN fatigue rated
Servo valve	40LPM @ 70 bar, High Response
Position Sensor	Stroke : 240mm with Analog +/- 10V O/p
Working Pressure	210 bar
Proof Pressure	310 bar
Mounting	Front and rear rod eye ends

50KN Servo Actuator



Cylinder Capacity	+/-50kN @ 210 bar
Cylinder Bore	100mm
Cylinder Rod	70mm(Double ended)
Stroke	150mm
End Cushioning	15mm at both ends
Load cell	+/-50KN fatigue rated
Servo valve	40LPM @ 70 bar, High Response
Position Sensor	Stroke : 150mm with Analog +/- 10V O/p
Working Pressure	210 bar
Proof Pressure	310 bar
Mounting	Rod end & Rear end Swivel Clevis

80KN Servo Actuator



Cylinder Capacity	+/-80kN @ 280 bar
Cylinder Bore	90mm
Cylinder Rod	63mm(Double ended)
Stroke	100mm
End Cushioning	20mm at both ends
Servo valve	450LPM @ 70 bar
Position Sensor	Stroke : 140mm with Analog 4-20 mA O/p
Working Pressure	280 bar
Proof Pressure	400 bar
Mounting	Rod end & Rear end Swivel Clevis

100KN Servo Actuator



Cylinder Capacity	+/-100kN @ 100 bar
Cylinder Bore	125mm
Cylinder Rod	50mm(Double ended)
Stroke	100mm
End Cushioning	10mm at both ends
Load Cell	+/- 100KN, Fatigue Rated
Working Pressure	100 bar
Proof Pressure	220 bar
Mounting	Eye end With Spherical Bearing

FR-Series –Fatigue rated Servo Actuators ordering Code



F	R	0	5	0	3	0	0	2	1	0	F	F	R	E	B	1	1	0	3	S	V	M	V
a		b			c			d			e		f			g		h		i	j		k

a	Servo Actuator Series
FR	Fatigue rated

b	Force Rating
050	5kN
010	10kN
015	15kN
025	25kN
050	50kN
075	75kN
100	100kN
150	150kN
250	250kN

c	Standard Stroke Length
Stroke	Ordering Steps
050mm...300mm	25mm

d	Working Pressure
140	140bar
210	210bar
280	280bar

e	Mounting
FF	Front Flange
RF	Rear Flange

f	End Connection
MTC	Male Thread Connection
FTC	Female Thread Connection
REF	Rod eye at front
REB	Rod eye at both the ends

g	Oil Media
1	Mineral Oil (grade 32 to 68)
2	MIL-5606H
3	Phosphate Ester (Skydrol)
4	Water Glycol

h	Servo Valve
101	4lpm
102	10lpm
103	20lpm
104	40lpm
105	60lpm
106	90lpm
107	150lpm
108	230lpm

i	Servo Valve Response
S	Standard Response
H	High Response

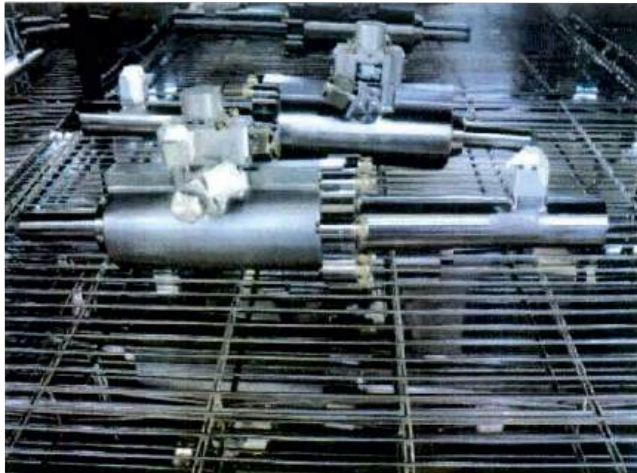
j	Position Sensor
N	Without Position Sensor
V	Analog (0-10V)
A	Analog (4-20mA)
M	Digital Start / Stop
S	Digital SSI
C	Other Options (see note1)

k	Fatigue rated Load Cell
N	Without Load Cell
MV	mV/V Output
10	±10V
20	4-20mA

Note 1 :

Other output options available on request (Profibus-DP, ProfiNet, CANOpen, CANbasic, EtherCAT)

10T Actuator Qualification Test



High Temperature Test



Low Temperature Test



Damp Heat Test

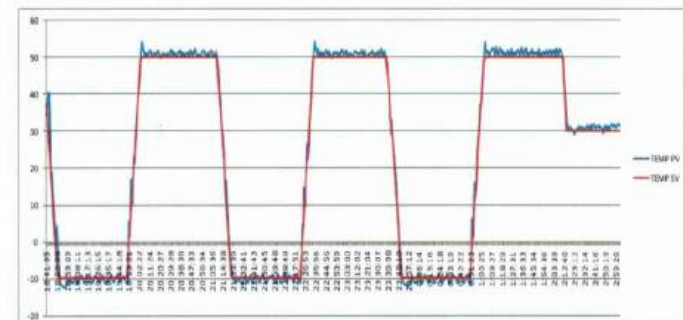


Vibration Test

Test Reports

THERMAL CYCLING TEST REPORT

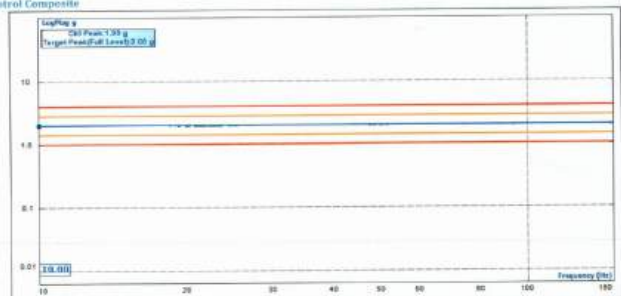
TEST SPECIFICATION: -10°C for 60 min & +50°C for 60 min. Total 3 cycles.



VIBRATION TEST REPORT

Test Description: Sine Vibration, 2g, 10 Hz to 150 Hz. Axis: X

Control Composite



Level: 100.00 %
Velocity Pk: 0.309 m/s
Full Level Elapsed: 00:08:00
Sweeping Rate: 0.97672 Oct/Min

Drive Pk: 0.718V
Remaining: 00:00:00
Control Pk: 1.993 g

Est. Displ (PkPk): 9.828mm
Total Elapsed: 00:08:11
Target Pk: 2.000 g

Skydrol based Hydraulic Power Units



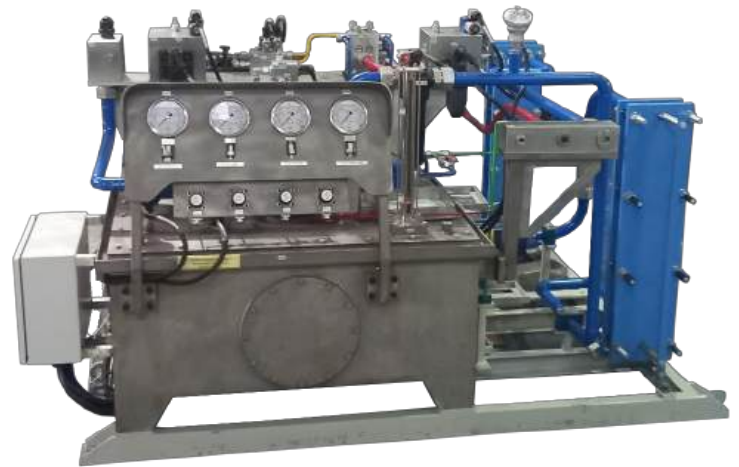
Hydraulic Power Pack for Mobile Applications



Energy Saving Hydraulic Power Units



MIL-5606 Based Hydraulic Power Units



Hydraulic Power Unit

Design and manufacturing of various types of hydraulic power units for industrial, aerospace, and automotive applications. These power units are designed with flow ratings ranging from 10lpm up to 450lpm and a maximum working pressure of up to 315 bar. These power packs are compatible to work with various hydraulic fluids, including mineral oil, MIL5606H, Skydrol, Water Glycol, etc.

Power Packs Under Assembly



The power packs are specially designed and manufactured as per customer specified standards in Stainless steel / Mild Steel / Castings/ Aluminium etc.

Welding process is done as per respective standards. DP Test / Radiography test are conducted to qualify welding. Shot blasting/sand blasting are done to avoid scaling / peeling of paints / contamination etc.

Flow Range :	10 lpm to 450 lpm
Pressure Range:	up to 315 bar
Media:	ISO-VG-46/68 / MIL-PRF-5606 /Water glycol(Pegcol)/Phosphate Ester(Skydrol) / Pegcol
Pump Options:	Fixed displacement Axial Piston Pump / Variable displacement Axial Piston Pump/Internal Gear pump / Vane pump etc.
Motor Options:	Induction Motor / AC Servo Motor / BLDC
Seals:	Nitrile / Viton/EPDM
Material:	St-42 / SS-304
Pipes & Fittings:	Complies to ISO-8434

Mil Grade Test System Control Cabinets



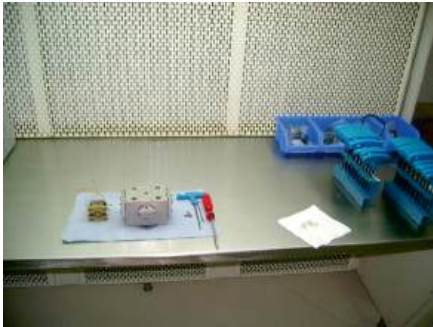
HPU Control Cabinets



Complex control systems and control cabinets are our speciality. We design and manufacture high quality control system and control cabinets which are safe, easy to maintain and highly functional. Our control centers include Hydraulic power pack electrical control panels, motion control and DAS control cabinets, 19" rack based units , free standing control panels, PLC & HMI based panels, Mil grade LRU's etc. We have IPC-610 & IPC-620 qualified and skilled man power resource for wire harness and soldering.

SERVO LAB – Repair and Servicing of Servo Valves

We are also technical alliance partners & Distributes of STAR UK in India



Laminar Test Stand for Assembly of 1st Stage and 2nd Stage



Frequency Response devices with inbuilt DCDT & 1 micron SSI sensor and pressure gauges to test dynamic response of Torque motor and complete Servo valve

We have a state of art class-1000 clean room servo system lab facility and tool room at our works in Belgaum, Karnataka which is one of its kind in entire India. We offer the most high quality and reliable servo valves & have our own in-house design, manufacturing, quality checking, assembly and testing of servo valves for flow 2 to 230 lpm and pressure up to 350 bar. Also we are in service business since last 22 years and serviced more than 10000 servo and servo proportional valves like Moog, Ultra, Dowty, Parker, Vickers, Rexroth, Atos, Herion, TSS, LHC & EMG etc.

In house facility for Designing, Engineering, Assembly, Manufacturing & Servicing of Custom built under **MAKE IN INDIA** Programme

SERVOCONTROLS SERVOVALVES FOR TEST APPLICATIONS/STEEL MILLS/POWER GENERATION /TURBINES/RAILWAYS & OTHERS

SERVOCONTROLS SERVOVALVES MODEL 550

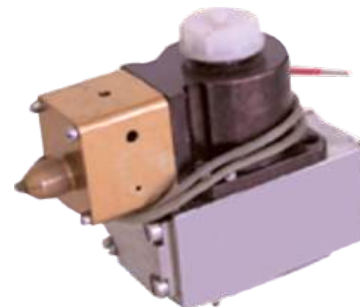
Model Code	Nominal flow at 70 bar (lpm)
Sc550 -101	4
SC550-102	10
SC550-103	20
SC550 -104	40
SC550-105	60
Sc550 -106	75

SERVOCONTROLS SERVOVALVES MODEL 890

Model Code	Nominal flow at 70 bar (lpm)
SC890-101	95
SC890-102	150
SC890-103	230

EXPLOSION PROOF, INTRINSICALLY SAFE GAS TURBINE SERVOCONTROLS SERVOVALVES AND REPAIRS OF EXISTING SERVO VALVES

Model Code	Nominal flow at 70 bar (lpm)
SC771K-103	20
SC771K-104	40



SERVOCONTROLS DIRECT DRIVE VALVE (DDV) - SC 633/SC634

SC 633- (Standard Valves)

± 10 Volts Input, lpm at 35 bar each land.

Model	Flow in LPM
SC633 - 101	5
SC633 - 102	10
SC633 - 103	20
SC633 - 104	40

± 10 mA Input, lpm at 35 bar each land.

Model	Flow in LPM
SC633 - 201	5
SC633 - 202	10
SC633 - 203	20
SC633 - 204	40

SC 634- (Standard Valves)

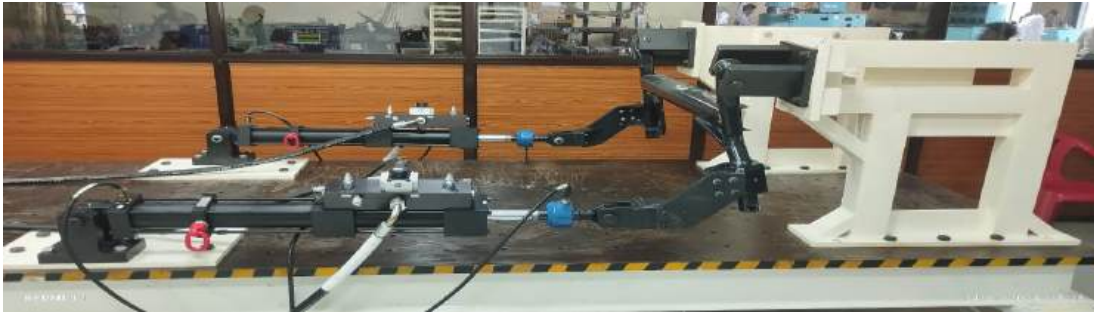
± 10 Volts Input, lpm at 35 bar each land.

Model	Flow in LPM
SC634 - 101	60
SC634 - 102	100

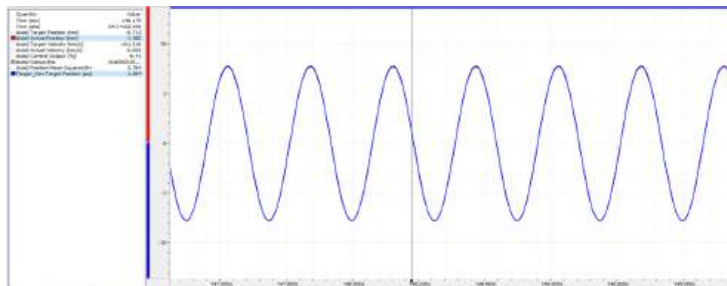
± 10 mA Input, lpm at 35 bar each land.

Model	Flow in LPM
SC634 - 201	60
SC634 - 202	100

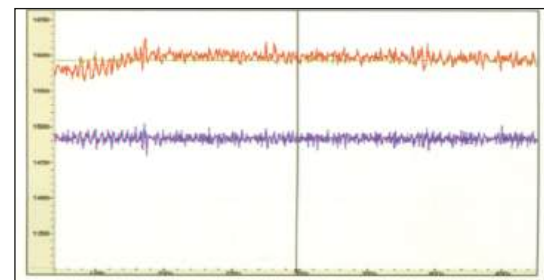




online plot captured during testing



Sinusoidal Profile @ 30 Hz



Road Data Profile

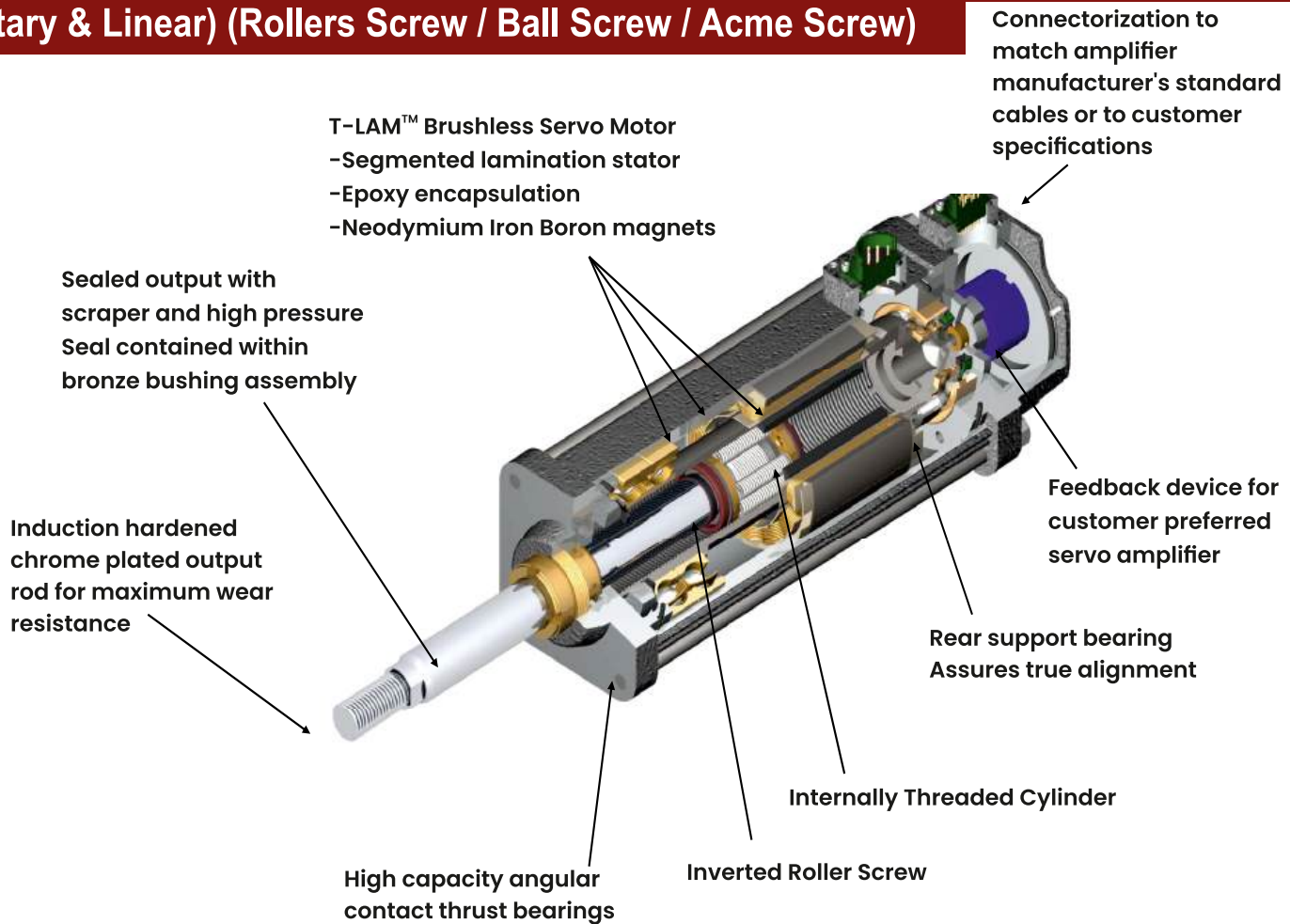
Dynamic Testing: Closed Loop motion control offers precise, smooth motion control in the field of Dynamic testing application. The control system consists of a PC based Data acquisition system, Interface software, Motion controller & Servo actuator with inbuilt load cell, Tempsonic position sensor & Servo valve. The interface software loaded into the PC allows the user to set the desired motion patterns & acquires the system data from various sensors for user display, plotting & report generation. The motion pattern or command set by the interface software will be fed into the Digital RMC motion controller for the execution.

The Servo Actuator consists of inbuilt high resolution (up to $0.5\mu\text{m}$) position sensor & Load Cell. The High response Servo valve is used to drive the Servo Actuator. The RMC motion controller continuously reads position/force information (2000 reads/sec) from inbuilt position sensor and load cell for precise monitoring & control of servo actuator position/force. The designed servo actuator is capable of moving at a rate up to 30Hz.

The RMC Motion Controller can be programmed to operate in Load control mode (by closing the loop with Load Cell), position/Velocity control mode (by closing the loop with inbuilt position sensor) or both position & force control mode (by closing loop with both Position sensor & Load Cell).

The NDT programs often involves the application of repetitive stress cycles on the device being tested. A motion controller that supports direct execution of cyclic motion operations makes it quick & easy to set up testing profiles. **The RMC motion controller is capable of generating various motion profiles that includes Sinusoidal, Triangular, Square and Random waveforms.** The pattern Frequency, Amplitude and phase parameter can be set online without stopping the test. The RMC Motion controller offers online tuning facility where the system gains can be changed while the system is running.

Linear Electromechanical Actuators (Rotary & Linear) (Rollers Screw / Ball Screw / Acme Screw)



Offering cover a wide range of performance and capabilities. Integrated servo motor and actuators. High quality screw for longer life. Ideal for Hydraulic replacement, more powerful, robust and compact size.

Features

Force Rating :	500N to 178KN
Stroke:	50mm to 1200mm
Velocity:	0.01mm to 1000mm/s
Servo Motor torque:	0.5Nm to 70Nm
Servo Motor Speed:	Up to 5000 RPM
Input Supply:	12VDC/24VDC/48VDC/110VAC/220VAC 1-PH & 440VAC 3PH
Mounting type:	Front flange / rear flange, rear clavis, side trunnion, base mount
Feedbacks:	Analog, Hall device, Incremental encoder, absolute encoder, resolver
Drive Support:	ABB, CT, B&R, Elmo, Ormec, Beckoff, Bosch-Rexroth, Kollmorgen, Lenz, Mitsubishi etc.



TECHNICAL ALLIANCE PARTNERS



TEMPOSONICS, GERMANY
Non contact Magnetostrictive
Position sensors



STAR, UK
Servo Valves



DELTA MOTION, USA
Closed loop Motion Controllers



HYDRAFORCE, UK
Screw in Cartridge and
Proportional valves



EXLAR, USA
Electromechanical Actuators



ORMEC, USA
Brushless Motor Drives
and Motion Engines



NANOMOTION, ISRAEL
Piezo Electric Motors and drives



TOKYO KEIKI, JAPAN
Hydraulic Pumps & Valves



NACOL ACCUMULATORS, JAPAN
Hydraulic Accumulators



MONTALVO, USA
Tension Control Systems



OUR ESTEEMED CUSTOMERS



Collins Aerospace



SERVOCONTROLS 100% EOU Unit in 12 acres of land near Hattargi Belagavi SEZ



SERVOCONTROLS facility
Industrial Estate, Udyambag, Belagavi



Servocontrol's
First servo Valve Test Setup
at Home Garage in July 2002
at Belagavi, Karantaka



Collin Aerospace Supplier of the Year
Award in 2022



Strong Team of 300+ Servocons

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