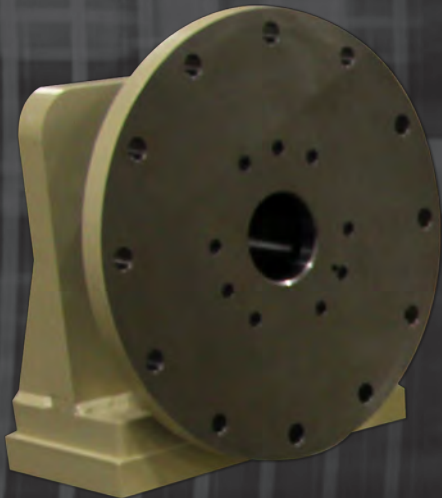




MOTION INDEX DRIVES

Flexible Positioning System
TR Series





MOTION INDEX DRIVES

An alternative to the extremely high precision and zero backlash TMF and RT series trunnion indexing systems, the TR Series offers a lower cost alternative to applications that require such high standards. Offered in complete head and tail stock standard sets, you have the option to purchase a complete trunnion solution from Motion Index Drives that includes heavy duty constructed base frame, HS/TS riser bases, and fixture backbones.

The TR series is ideal for rollover applications in the aerospace, automotive, defense, construction and mining equipment, alternative energy and railroad transportation manufacturing environments. The TR Series was manufactured to be suited for laser, spot, mig and tig welding applications.

Incorporating the TR series into to your weld cells can be relatively easy by indicating what robot manufacturer you are implementing and the TR Trunnion can be adapted to accept virtually every robot brand.

TR Series

Motion Index Drives' TR series headstock / tailstock trunnion sets utilize a high precision (less than 1 arc minute) planetary gear system mounted in a vertical position complete with mounting plates. TR series Trunnion Index Drives are ideal for moving large masses with smaller units and minimizing your equipment's footprint on the floor. All TR series trunnion units can be ordered with standard or custom frames fully equipped with head and tailstock supports and one-piece base weldments.

Technical benefits for end users

- Long service lives.
- Large thru hole on tailstock for running utilities to fixtures.
- Requires less power than leading competitors.
- Oversized bearings on tailstock for support.
- Directly mount to gear head system mounting plate which eliminates the need for additional pillow blocks.

Options Available

- Special hole patterns in mounting plates on headstock and tailstock.
- Clockwise, counter-clockwise and oscillating index modes of operation.
- Can be ordered as complete assembly with headstock, tailstock and base frame.
- Various gear ratios.
- Variety of encoder or positioning devices.



MOTION INDEX DRIVES TRUNNIONS (All dimensions in mm)					
Assembly Number	Headstock	Tailstock	Ratio	Fanuc Motor	Kuka Motor
TRxxx-xxx-xxxxx	250	250	171	Alpha IF08/3000	MG180
TRxxx-xxx-xxxxx	250	250	171	Alpha IS08/4000	MG110
TRxxx-xxx-xxxxx	300	300	185	Alpha IF12/3000	MG180
TRxxx-xxx-xxxxx	300	300	185	Alpha IS12/4000	MG180
TRxxx-xxx-xxxxx	365	365	192	Alpha IF22/3000	MG360
TRxxx-xxx-xxxxx	365	365	192	Alpha IF30/3000	MG180
TRxxx-xxx-xxxxx	900	900	250	Alpha IF30/3000	MG480

TRXXX-XXX-XXX-XXXX
<p>Table Class</p> <p>Headstock Class</p> <p>Tailstock Class</p> <p>Trunnion Ratio</p> <p>Motor</p>

MID HEADSTOCK/TAILSTOCK SPECIFICATIONS W/FANUC MOTOR

CLASS	MODEL#	AMPLIFIER	180° INDEX TIME (sec)	PAYLOAD (Kg)	PEAK RPM	ACCEL/DECEL (sec)	MAX CG OFF-SET (mm)	MAX ENVELOPE DIAMETER	MAX MOMENT OF INERTIA (kgm)
250	TR250-171-a8iF	aiSV-40	3	110	17.54	1.3	101	2250	538
	TR250-171-a8iS	aiSV-80	2	1000	23.39	0.72	101	1500	237
300	TR300-185-a12iF	aiSV-80	3	1900	16.22	1.15	101	2700	1302
	TR300-185-a12iS	aiSV-80	2	1900	21.62	0.61	101	1800	620
365	TR365-192-a22iF	aiSV-80	3	2500	15.63	1.08	101	2400	1377
	TR365-192-a30iF	aiSV-160	3	5000	15.63	1.08	101	2500	2969
900	TR900-250-a30iF	aiSV-160	3.5	6700	11.98	1	101	3150	6132
	TR300-250-a30iS	aiSV-160	3	5500	15.98	1.12	101	2800	4043
	TR900-250-a30iF	aiSV-160	5	6700	11.98	2.5	101	3700	8321

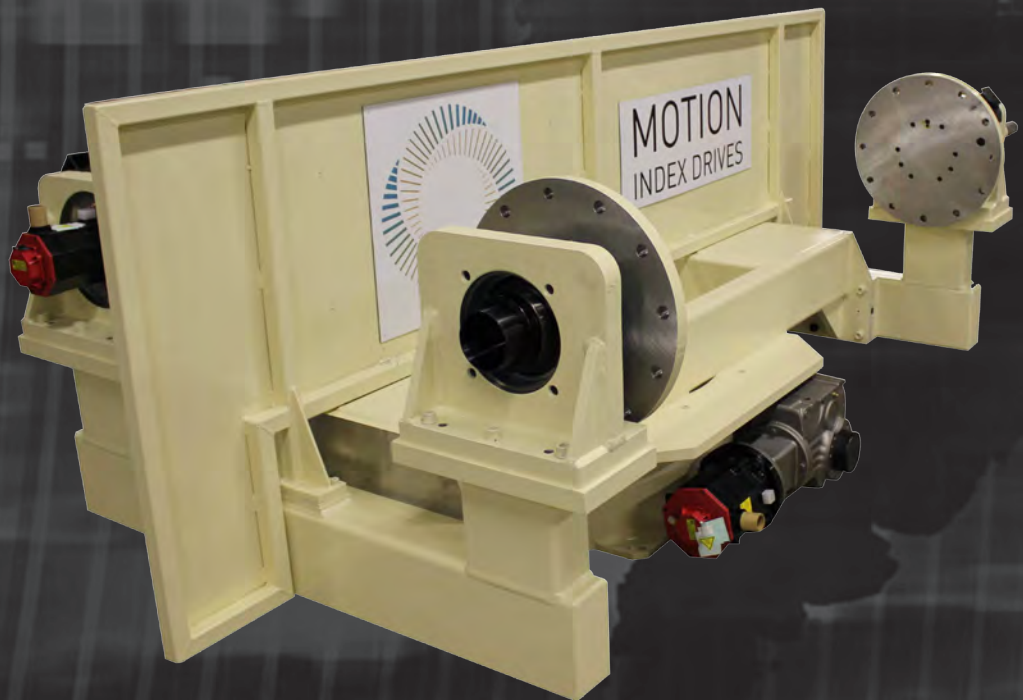
MID HEADSTOCK/TAILSTOCK SPECIFICATIONS W/KUKA MOTOR

CLASS	MODEL#	AMPLIFIER	180° INDEX TIME (sec)	PAYLOAD (Kg)	PEAK RPM	ACCEL/DECEL (sec)	MAX CG OFF-SET (mm)	MAX ENVELOPE DIAMETER	MAX MOMENT OF INERTIA (kgm)
250	TR250-171-MG180	KSD32	2	1000	23.39	0.72	101	1500	284
	TR250-171-MG110	KSD16	3	1100	17.54	1.3	101	2250	587
300	TR300-185-MG180	KSD48	2.25	1900	18.51	0.6	101	1800	620
	TR300-185-MG180	KSD32	3	1900	16.22	1.15	101	2700	1302
365	TR365-192-MG360	KSD64	3.25	5000	13.02	0.95	101	2500	2969
	TR365-192-MG180	KSD32	3	2500	15.63	1.08	101	2400	1377
900	TR900-250-MG360	KSD64	4	6700	9.99	1	101	3150	6132
	TR300-250-MG480	KSD64	5	6700	8.79	1.59	101	3700	8321



MOTION INDEX DRIVES

Flexible Positioning System
DR-TR Series





MOTION INDEX DRIVES

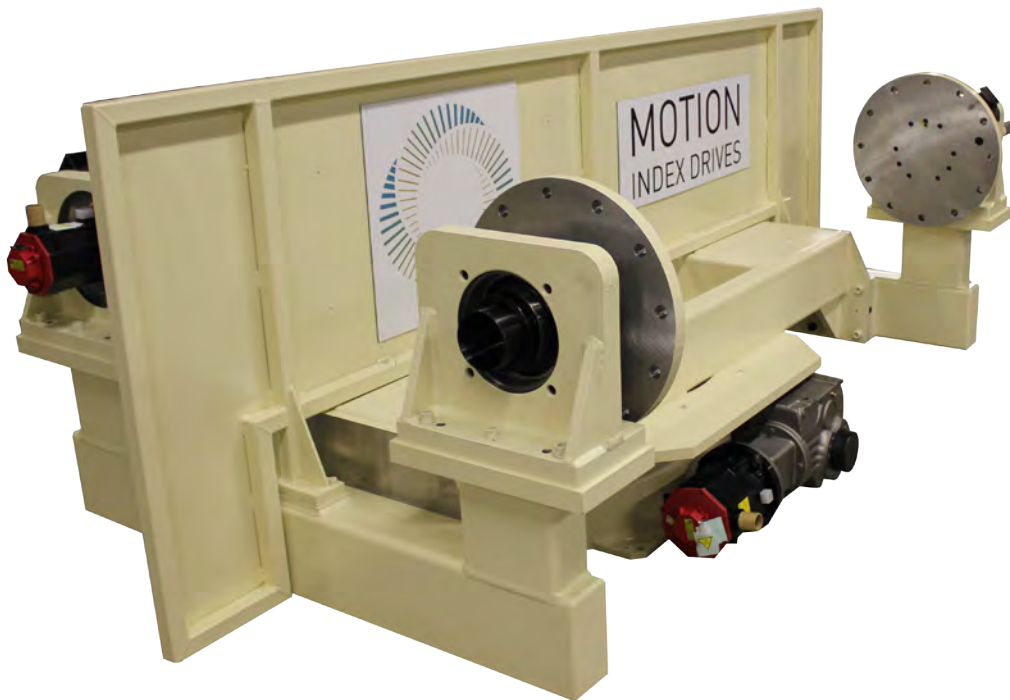
Motion Index Drives DR-TR Trunnion system is a complete 3 axis machine, designed and engineered to provide superior performance in demanding industrial automation environments. The DR-TR System is comprised of a base index drive, which can be either a fixed number of station index drive, or a programmable drive, which rotates a steel weldment. On this weldment are mounted two trunnion assemblies, each consisting of a head stock and tail stock. The system provides a superior accuracy, index time, and flexibility to meet the demands of modern automation systems. As each system is built for our customers needs, all dimensions can be adjusted to fit the application requirement.

Flexible Positioning System

Motion Index Drives programmable index drives all feature extremely high accuracy with high quality manufacturing and oversized components. All programmable index drives feature flame hardened constant lead barrel cams, which provide no backlash between top rotating dial and the cam itself, through the multiple cam followers engaged into the cam at all times. The large number of cam followers engaged in the cam allows for increased inertial loading capabilities along with the ability for very fast index times and very long life. The programmable index tables can be driven with either a 3 phase AC motor with encoder, or with a servo motor of choice. The encoder on the motor provides the position feedback of the index drive, and in many cases, an additional axis for a robot can be used to control the index table while utilizing the same brand servo as the robot. Programmable index tables provide infinite positioning while maintaining the same high quality and reliability of Motion Index Drives traditional fixed index drives.

Key Features and Benefits

- Infinite positioning and index angle is possible
- Multiple oversized cam followers engaged in cam at all times
- Minimal maintenance
- Can utilize any motor required (AC motor with encoder, servo, etc.)
- Range in all sizes of index drives
- Capable of both high speed applications and high load
- Extremely compact relative to inertial load capability



MOTION INDEX DRIVES DRTR DUAL TRUNNION SYSTEMS (All dimensions in mm)					
Assembly Number	Axis 1	Trunnion	Trunnion Ratio	Cl Height	Faceplate Width
TMF3000-TR250-171-750-2000-X	TMF3000	250	171	750	2000
TMF3000-TR250-171-750-2500-X	TMF3000	250	171	750	2500
TMF3000-TR250-171-750-3000-X	TMF3000	250	171	750	3000
TMF3000-TR250-171-900-2000-X	TMF3000	250	171	900	2000
TMF3000-TR250-171-900-2500-X	TMF3000	250	171	900	2500
TMF3000-TR250-171-900-3000-X	TMF3000	250	171	900	3000
TMF3000-TR300-185-750-2000-X	TMF3000	300	185	750	2000
TMF3000-TR300-185-750-2500-X	TMF3000	300	185	750	2500
TMF3000-TR300-185-750-3000-X	TMF3000	300	185	750	3000
TMF3000-TR300-185-900-2000-X	TMF3000	300	185	900	2000
TMF3000-TR300-185-900-2500-X	TMF3000	300	185	900	2500
TMF3000-TR300-185-900-3000-X	TMF3000	300	185	900	3000

TMF3000-TRXXX-XXX-XXX-XXXX
<p style="text-align: center;"> Table Class Trunnion Class Trunnion Ratio Cl Height Faceplate Width </p>

MID Standard Double Trunnion with Kuka Motors (other servo motors can be used)

CLASS	MODEL #	EXCHANGE AXIS MOTOR	EXCHANGE AXIS AMPLIFIER	TRUNNION AXIS MOTORS	TRUNNION AXIS DUAL AMPLIFIER	EXCHANGE 180° INDEX TIME	TRUNNION 180° INDEX TIME	EACH TRUNNION PAYLOAD	MAX TRUNNION ENVELOPE	MAX TRUNNION INERTIA	TRUNNION CENTER-LINE TO FLOOR DISTANCE	DISTANCE BETWEEN FACE PLATES
250	TMF3000-TR250-171-750-2000-X	MG360	KSD64	MG180	KSD32	4.5	2	1000	1400	237	750	2000
	TMF3000-TR250-171-750-2500-X	MG360	KSD64	MG180	KSD32	4.5	2	1000	1400	237	750	2500
	TMF3000-TR250-171-750-3000-X	MG480	KSD64	MG180	KSD32	4.5	2	1000	1400	237	750	3000
	TMF3000-TR250-171-900-2000-X	MG360	KSD64	MG180	KSD32	4.5	2	1000	1400	237	900	2000
	TMF3000-TR250-171-900-2500-X	MG360	KSD64	MG180	KSD32	4.5	2	1000	1400	237	900	2500
	TMF3000-TR250-171-900-3000-X	MG480	KSD64	MG180	KSD32	4.5	2	1000	1400	237	900	3000
300	TMF3000-TR300-185-750-2000-X	MG360	KSD64	MG180	KSD48	5	2	1818	1400	620	750	2000
	TMF3000-TR300-185-750-2500-X	MG360	KSD64	MG180	KSD48	5	2	1818	1400	620	750	2500
	TMF3000-TR300-185-750-3000-X	MG360	KSD64	MG180	KSD48	5	2	1818	1400	620	750	3000
	TMF3000-TR300-185-900-2000-X	MG360	KSD64	MG180	KSD48	5	2	1818	1400	620	900	2000
	TMF3000-TR300-185-900-2500-X	MG360	KSD64	MG180	KSD48	5	2	1818	1400	620	900	2500
	TMF3000-TR300-185-900-3000-X	MG360	KSD64	MG180	KSD48	5	2	1818	1400	620	900	3000

MID Standard Double Trunnion with Fanuc Motors (other servo motors can be used)

250	TMF3000-TR250-171-750-2000-X	A22IF	AISV-80	A8IS	AISV-80/80	4.5	2	1000	1400	237	750	2000
	TMF3000-TR250-171-750-2500-X	A22IF	AISV-80	A8IS	AISV-80/80	4.5	2	1000	1400	237	750	2500
	TMF3000-TR250-171-750-3000-X	A30IF	AISV-80	A8IS	AISV-80/80	4.5	2	1000	1400	237	750	3000
	TMF3000-TR250-171-900-2000-X	A22IF	AISV-80	A8IS	AISV-80/80	4.5	2	1000	1400	237	900	2000
	TMF3000-TR250-171-900-2500-X	A22IF	AISV-80	A8IS	AISV-80/80	4.5	2	1000	1400	237	900	2500
	TMF3000-TR250-171-900-3000-X	A30IF	AISV-80	A8IS	AISV-80/80	4.5	2	1000	1400	237	900	3000
300	TMF3000-TR300-185-750-2000-X	A22IF	AISV-80	A12IS	AISV-80/80	5	2	1818	1400	620	750	2000
	TMF3000-TR300-185-750-2500-X	A22IF	AISV-80	A12IS	AISV-80/80	5	2	1818	1400	620	750	2500
	TMF3000-TR300-185-750-3000-X	A22IF	AISV-80	A12IS	AISV-80/80	5	2	1818	1400	620	750	3000
	TMF3000-TR300-185-900-2000-X	A22IF	AISV-80	A12IS	AISV-80/80	5	2	1818	1400	620	900	2000
	TMF3000-TR300-185-900-2500-X	A22IF	AISV-80	A12IS	AISV-80/80	5	2	1818	1400	620	900	2500
	TMF3000-TR300-185-900-3000-X	A22IF	AISV-80	A12IS	AISV-80/80	5	2	1818	1400	620	900	3000