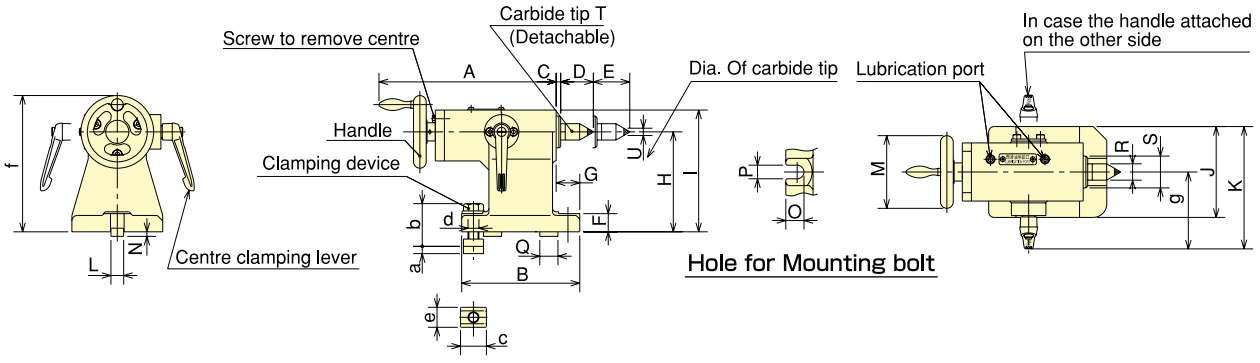
Tailstock Manual

Supports long work pieces securely

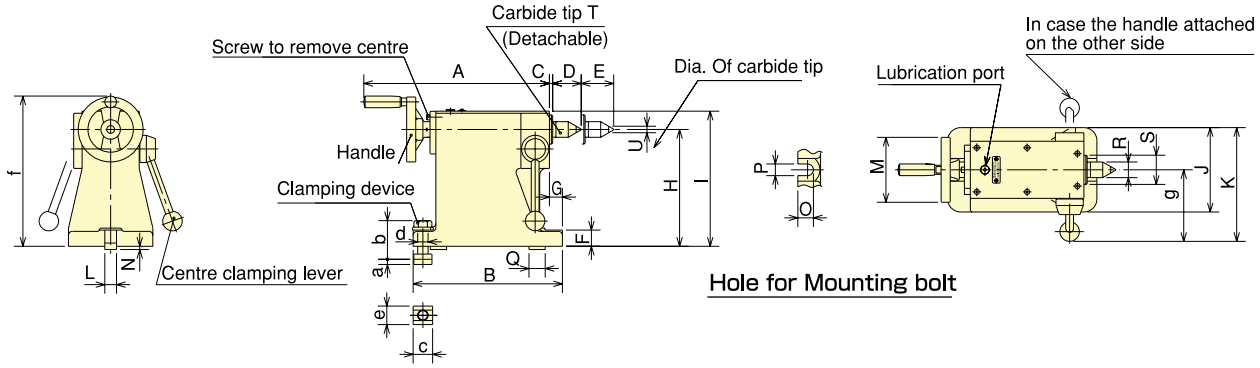
- Clamp handle can be installed on left or right side
- Notch type hard wheel

■Dimensions

RS100/MR120/MR160 Dimensions



MR/TS Dimensions



■ Dimensions

Model / Dimensions	A	B	C	D	E Max.	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	a	b	c	d	e	f	g	Mass of product(kg)
RS100RN	195	130	5	36.0	40	20	26	110	134.0	100	135.0	14h 7	ϕ80	5	20.0	15	20	ϕ18.0	ϕ35	MT-2	ϕ8	8.6	47.0	28.5	M12	22.0	150	85.0	8
MR120RN	185	130	5	36.0	30	20	26	120	144.0	100	135.5	14h7	ϕ80	5	20.0	15	20	ϕ18.0	ϕ35	MT-2	ϕ8	8.6	47.0	28.5	M12	22.0	160	85.5	9
MR160RN	185	140	5	36.0	30	25	31	140	164.0	120	145.5	18h7	ϕ80	5	24.5	19	25	ϕ18.0	ϕ35	MT-2	ϕ8	11.0	58.0	30.0	M16	28.5	180	85.5	10
TS160RN	286	220	5	44.0	50	20	15	120	149.5	110	160.0	18h7	ϕ100	5	22.0	19	25	ϕ24.1	ϕ45	MT-3	ϕ10	11.0	54.5	30.0	M16	28.5	170	103.0	12
MR200RN TS200RN	286	230	5	44.0	50	25	20	140	169.5	120	163.0	18h7	ϕ100	5	24.5	19	25	ϕ24.1	ϕ45	MT-3	ϕ10	11.0	59.5	30.0	M16	28.5	190	103.0	16
MR250RN TS250RN	286	230	5	44.0	50	25	20	180	209.5	130	176.0	18h7	ϕ100	5	24.5	19	25	ϕ24.1	ϕ45	MT-3	ϕ10	11.0	59.5	30.0	M16	28.5	230	111.0	20
MR320RN TS320RN	286	230	5	44.0	50	25	20	225	254.5	150	186.0	18h7	ϕ100	5	24.5	19	25	ϕ24.1	ϕ45	MT-3	ϕ10	11.0	59.5	30.0	M16	28.5	275	111.0	24
TS400RN	414	320	3	52.4	70	35	17	255	305.0	210	261.0	18h7	ϕ140	5	28.5	19	25	ϕ31.6	ϕ65	MT-4	ϕ14	11.0	69.5	30.0	M16	28.5	325	156.0	67
TS500RN	414	320	3	52.4	70	35	17	310	360.0	210	261.0	18h7	ϕ140	5	28.5	19	25	ϕ31.6	ϕ65	MT-4	ϕ14	11.0	69.5	30.0	M16	28.5	380	156.0	80
TS630RN	461	330	5	70.0	80	40	15	400	450.0	260	317.0	18h7	ϕ160	5	32.5	19	25	ϕ44.7	ϕ80	MT-5	ϕ18	11.0	77.5	30.0	M20	28.5	480	187.0	100

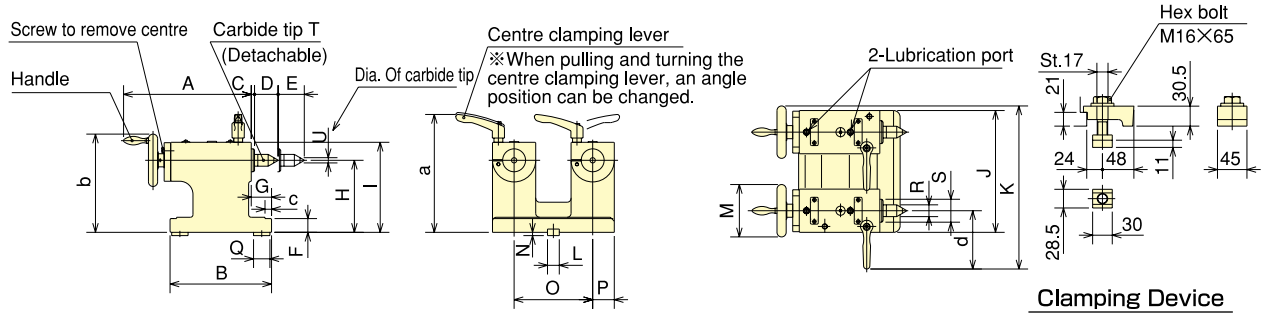
Tailstock Manual (Multi spindles)

Supports long work pieces securely

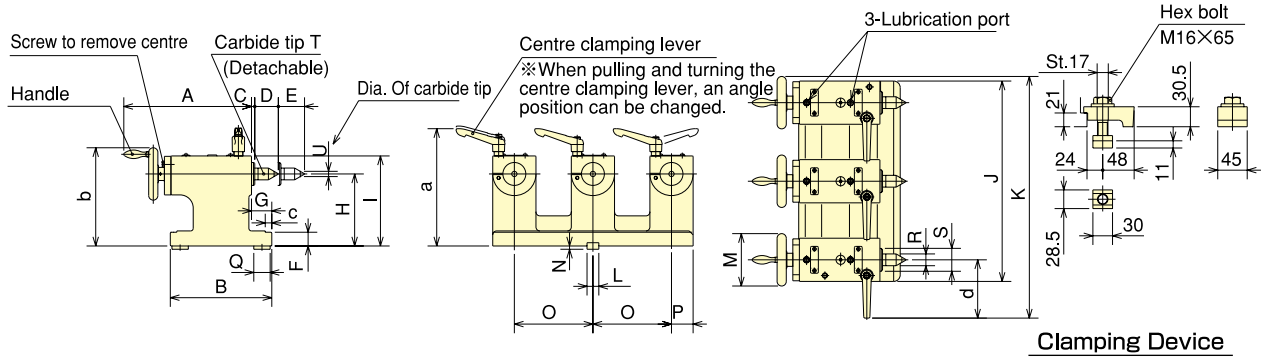
- Clamp handle can be installed on left or right side
- Notch type hard wheel

■Dimensions

TS2100/TS2160 Dimensions



TS3100/TS3160 Dimensions



■ Multi Spindles Dimensions

Model \ Dimensions	A	B	C	D	E Max.	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	a	b	c	d	Mass of product(kg)
TS2100RN	195	155	5	36	40	21	31	110	138	186	249	18h7	ϕ80	5	120	33	25	ϕ18	ϕ35	MT-2	ϕ8	180	150	10	89	17
TS2160RN	195	155	5	36	40	21	31	140	168	266	329	18h7	ϕ80	5	200	33	25	ϕ18	ϕ35	MT-2	ϕ8	210	180	10	89	20
TS3100RN	195	155	5	36	40	21	31	110	138	306	369	18h7	ϕ80	5	120	33	25	ϕ18	ϕ35	MT-2	ϕ8	180	150	10	89	32
TS3160RN	195	155	5	36	40	21	31	140	168	466	529	18h7	ϕ80	5	200	33	25	ϕ18	ϕ35	MT-2	ϕ8	210	180	10	89	39

Tailstock

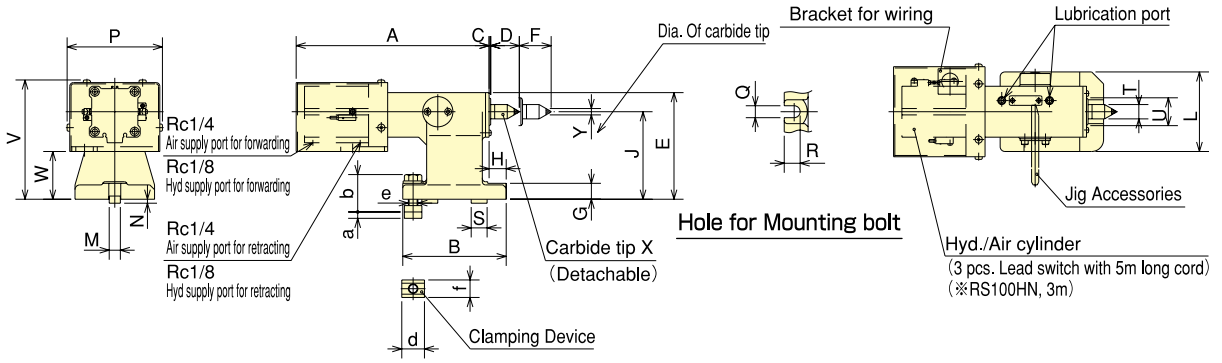
Pneumatic/Hydraulic
Parts correcponding to order received

Supporting a Long Work Securely

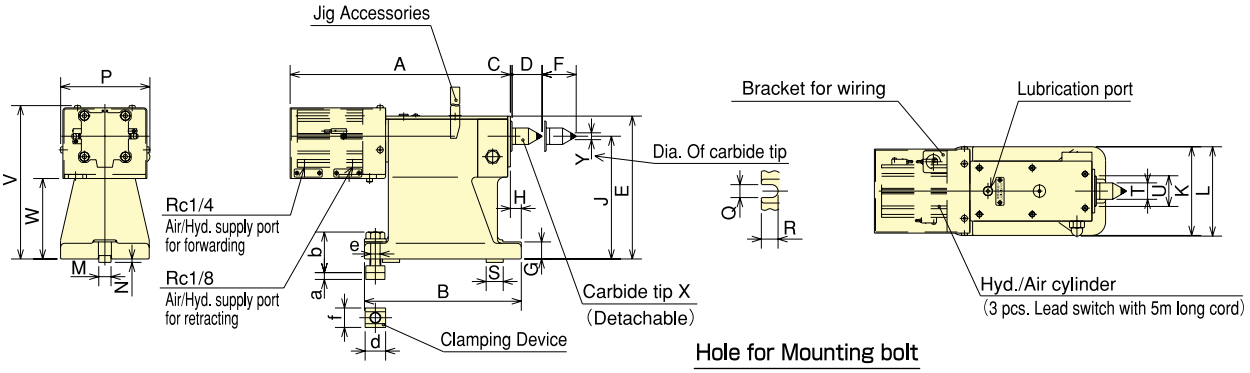
- Stroke confirmation on cylinder
- Removable carbide centre
- Easily exchangeable quil-type centre
- Equipped with a proximity switch for position confirmation

■Dimensions

RS100/MR120/MR160 Dimensions



MR/TS Dimensions



■Dimensions

Model \ Dimensions	A	B	C	D	E	F Max.	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	a	b	d	e	f	Center thrust (Pneu.) (kN)	Center thrust (Hyd.) (kN)	Mass of product(kg)
RS100A(H)N	256	130	2.0	36.0	134.0	40	20	21.5	110	—	100	14h7	5	120	15	20.0	20	ϕ18.0	ϕ35	150	60.0	MT-2	ϕ8	8.6	47.0	28.5	M12	22.0	0.98	—	10
MR120A(H)N	236	130	2.0	36.0	144.0	30	20	21.5	120	—	100	14h7	5	120	15	20.0	20	ϕ18.0	ϕ35	160	77.0	MT-2	ϕ8	8.6	47.0	28.5	M12	22.0	0.98	1.71	11
MR160A(H)N	236	140	2.0	36.0	164.0	30	25	26.5	140	—	120	18h7	5	120	19	24.5	25	ϕ18.0	ϕ35	180	57.0	MT-2	ϕ8	11.0	58.0	30.0	M16	28.5	0.98	1.71	12
TS160A(H)N	323	220	2.5	44.0	149.5	50	20	11.0	120	110	123	18h7	5	130	19	22.5	25	ϕ24.1	ϕ45	165	58.0	MT-3	ϕ10	11.0	54.5	30.0	M16	28.5	1.55	2.80	16
MR200A(H)N TS200A(H)N	323	230	2.5	44.0	169.5	50	25	16.0	140	120	126	18h7	5	130	19	24.5	25	ϕ24.1	ϕ45	185	78.0	MT-3	ϕ10	11.0	59.5	30.0	M16	28.5	1.55	2.80	20
MR250A(H)N TS250A(H)N	323	230	2.5	44.0	209.5	50	25	16.0	180	130	131	18h7	5	130	19	24.5	25	ϕ24.1	ϕ45	225	118.0	MT-3	ϕ10	11.0	59.5	30.0	M16	28.5	1.55	2.80	24
MR320A(H)N TS320A(H)N	323	230	2.5	44.0	254.5	50	25	16.0	225	150	—	18h7	5	130	19	24.5	25	ϕ24.1	ϕ45	270	160.0	MT-3	ϕ10	11.0	59.5	30.0	M16	28.5	1.55	2.80	28
TS400HN	458	320	3.0	52.4	305.0	70	35	17.0	255	210	—	18h7	5	165	19	28.5	25	ϕ31.6	ϕ65	323	186.0	MT-4	ϕ14	11.0	69.5	30.0	M16	28.5	—	5.50	71
TS500HN	458	320	3.0	52.4	360.0	70	35	17.0	310	210	—	18h7	5	165	19	28.5	25	ϕ31.6	ϕ65	378	241.0	MT-4	ϕ14	11.0	69.5	30.0	M16	28.5	—	5.50	84

※The centre thrust force values shown are at 0.5 MPa for pneumatic force, or 3.5 MPa for hydraulic force.

Tailstock

Pneumatic/Hydraulic (Multi spindles)
Parts correcponding to order received

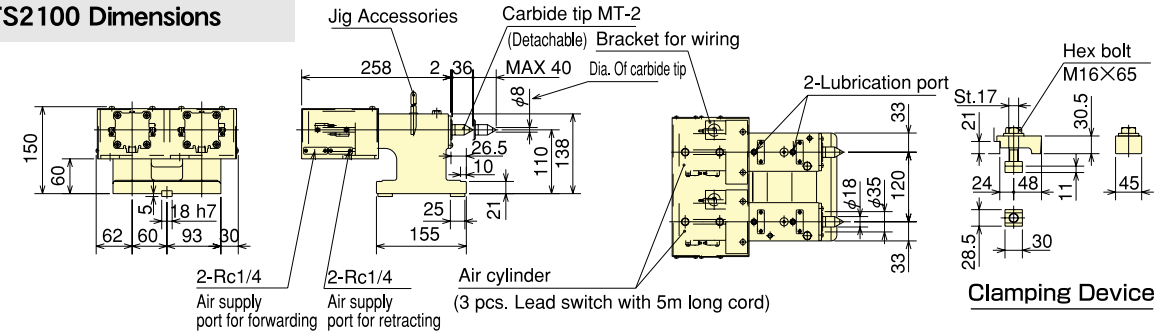
Parts correcponding to order received

Supporting a Long Work Securely

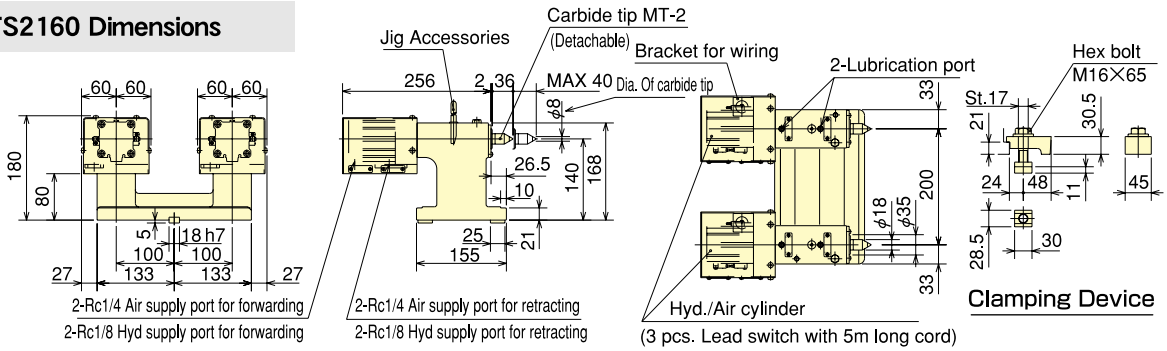
- Stroke confirmation on cylinder
- Removable carbide centre
- Easily exchangeable quil-type centre
- Equipped with a proximity switch for position confirmation

■Dimensions

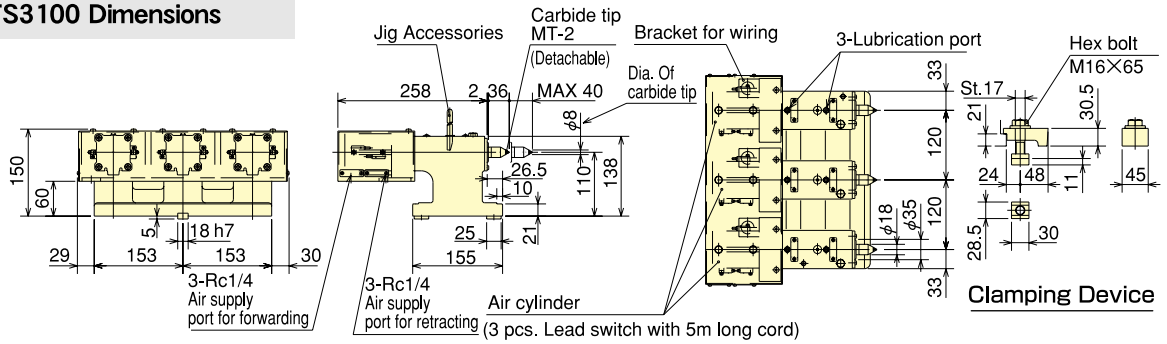
TS2100 Dimensions



TS2160 Dimensions



TS3100 Dimensions



■ Multi Spindles Dimensions

Model \ Dimensions	Centre trust [Pneu] (kN)	Centre trust [Hyd.] (kN)	Mass product (kg)
TS2100AN	0.98	-	22
TS2160A(H)N	0.98	1.71	25
TS3100A	0.98	-	32

NC ROTARY TABLE

Tail Spindle TSR SERIES・MSR

Support for index machining of large work and trunnion assemblies

●Clamping mechanism spec
(Heavy duty tailstock with Disk clamping)
●Non clamping mechanism spec
●Suitable for supporting many types of jig

TSR142A

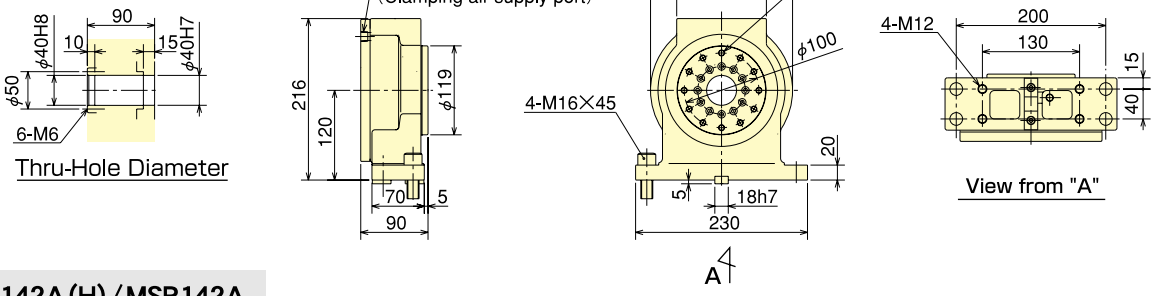
■Specifications [clamping mechanism specification]

Model	Centre height (mm)	Spindle hole (mm)	Clamping torque (N・m)		Mass of product (Kg)
			Air pressure 0.5MPa	Hyd.pressure 3.5MPa	
TSR121A	120	ϕ40	310	—	18
TSR142A (H) /MSR142A	140	ϕ40	450	600	21
TSR181A (H) /MSR181A	180	ϕ70	600	1000	47

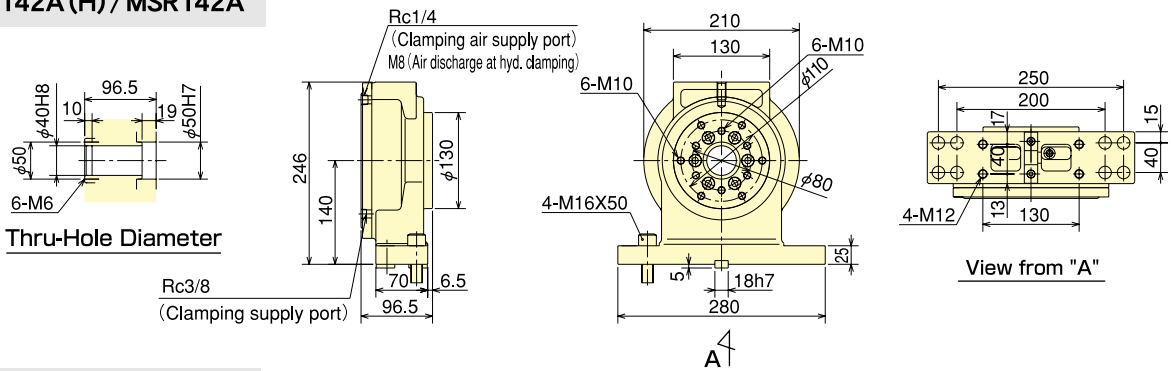
Note) Neither Pressure Switch, clamp and unclamp, not Solenoid Valve are attached.

■Dimensions [clamping mechanism specification]

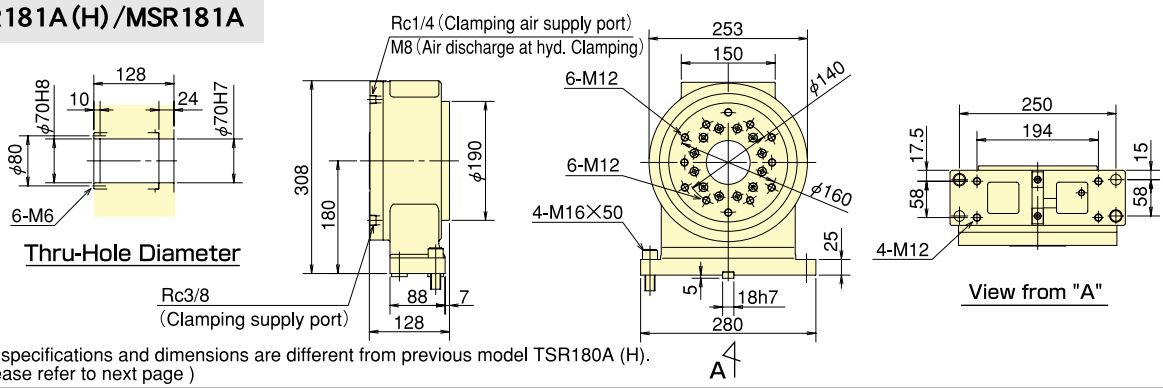
TSR121A



TSR142A (H) / MSR142A



TSR181A (H) / MSR181A



※The specifications and dimensions are different from previous model TSR180A (H).
(Please refer to next page)

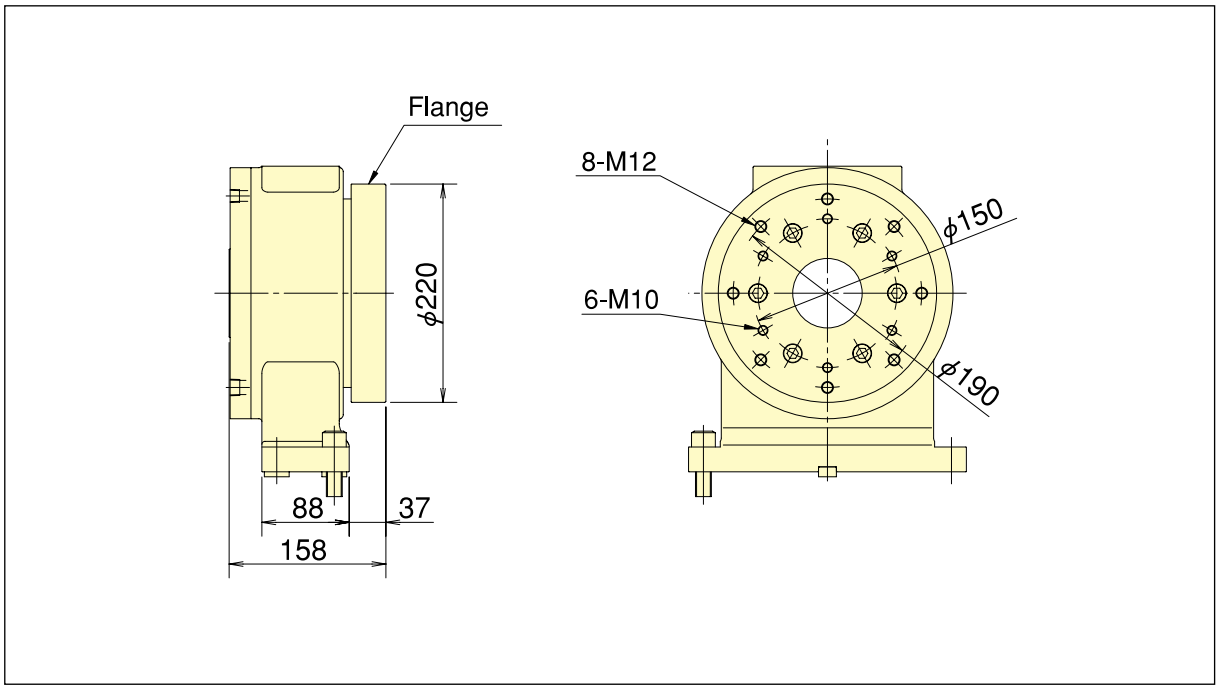
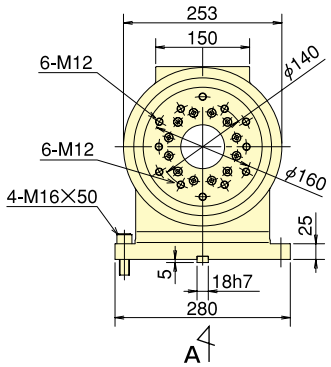
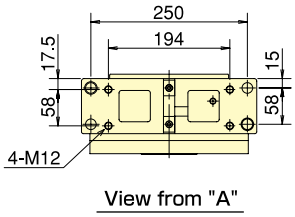


Fig. 1

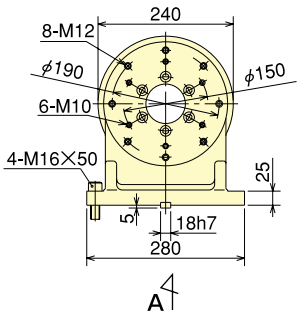
Compatibility of the Face plate for TSR181A (H) and previous model TSR180A(H) is available by mounting optional flange parts (※Fig. 1)
Please note that the mounting dimensions for TSR181A (H) and previous model TSR180A (H) are different. (※Fig. 2)
For more information please ask sales parson in your area.

TSR181A(H)





Previous model TSR180A (H).



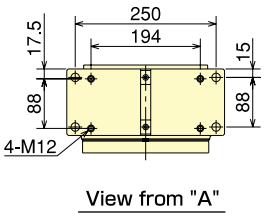


Fig. 2

Trunnion assembly TJ series TJ16M38E・TJ16M38C

Quick delivery; NC Rotary Table, Tail Spindle and Trunnion Assembly

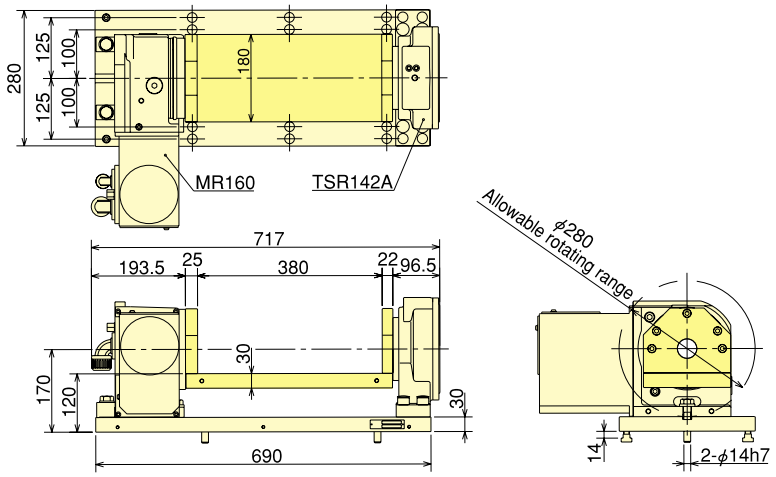
●Allows greater flexibility to meet specific customer requirements
Simultaneous machining of multiple work pieces
●Multifaceted machining possible: Excellent rigidity

■ Specifications

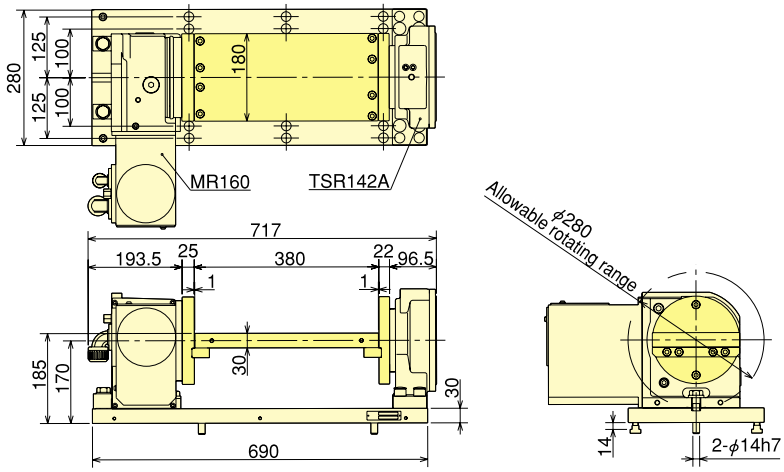
	Item / Model		TJ16M38E	TJ16M38C
1	Plate length	(mm)	380	380
2	Plate width	(mm)	180	180
3	Plate height above the datum plane	(mm)	120	185
4	Allowable rotating radius	(mm)	ϕ280	ϕ280
5	Allowable load	(kg)	80	40 on one side (80 in total)
6	Mass of product	(kg)	133	135

■ Dimensions

TJ16M38E／Offset Type



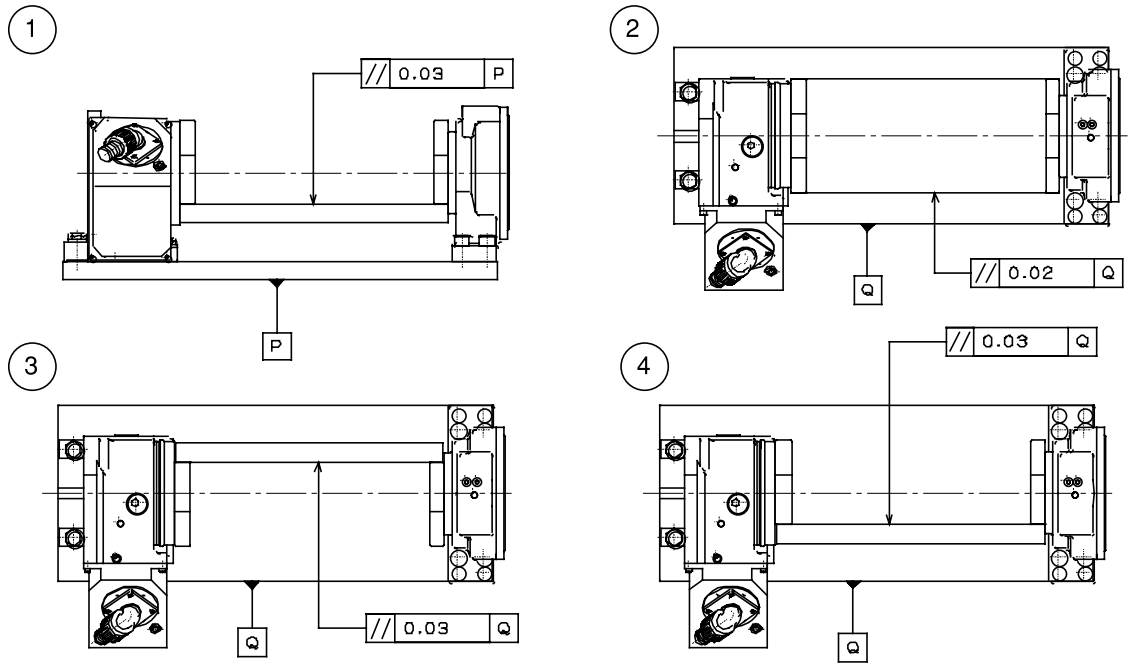
TJ16M38C／Centre Type



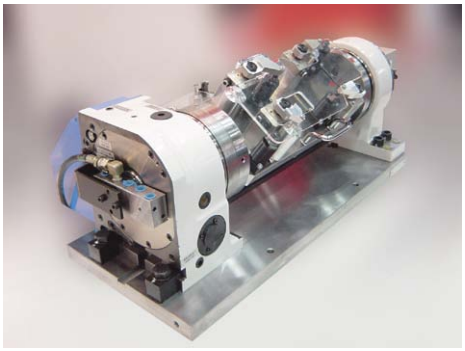
TJ

■ DATA accuracy specification

	Inspection Item	Allowance
1	Plate upper face parallelism to the mounting datum plane P	0.03 mm
2	Plate upper face parallelism to the mounting datum plane Q	0.02 mm
3	Plate upper face parallelism to the plate datum plane Q (at 90˚rotation)	0.03 mm
4	Plate upper face parallelism to the plate datum plane Q (at 270˚rotation)	0.03 mm



Sample Application



▲Trunnion Assembly can be made to customers specific requirements to increase machining flexibility.

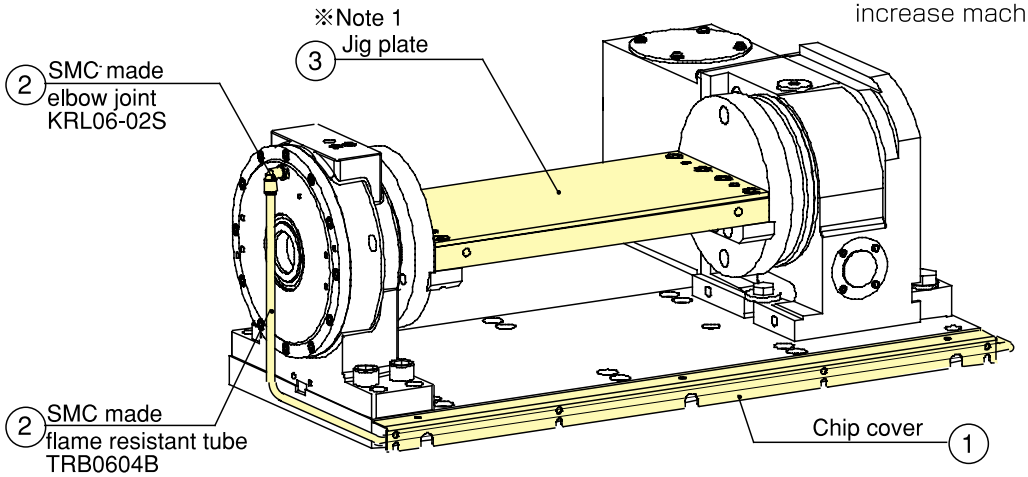
■TJ Options

Following optional parts are available.

① Chip cover

② Flame resistant tube (with elbow joint)

③ Jig plate



Note) 1.Accuracy adjustment must be done by the user after fitting any additional jig plate.
2.Consult for any special parts or additional processing beside options.

TJ

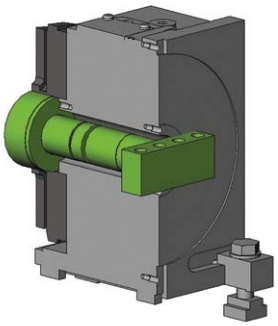
NC ROTARY TABLE

Rotary Joint RJ

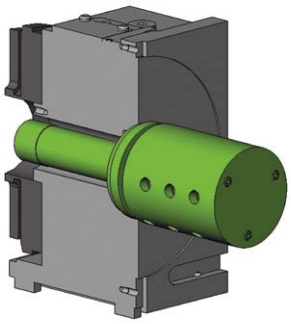
- Built in rotary joint reduces supply block projection
- External rotary joint allows many ports
- Provides air or hydraulic pressure from the rear of the table to a fixture

■Applicable machine type and the specifications

Model	Size	Maximum number of ports		Rated input pressure (MPa)		
		Built-in type	External type	Hydraulic		Air-Hydraulic
				Built-in type	External type	
MR	120	3	4	3	7	0.7
	160	4 (+1)	6	7		
	200	4 (+1)	6			
	250	6	8			
	320	6	8			
MRT	200	4 (+1)	6			
GT	200	4 (+1)	6			
	250	6	8			
	320	6	8			
TMX	160	4 (+1)	6			
	200	4 (+1)	6			
	250	6	8			
TUX	200	4 (+1)	6			
	250	6	8			
	320	6	8			
TRX	320	6	10			
TT/TW	101	3	—	3		
	120	3	—			
	140	4	—	7		
	150	4 (+1)	—			
	182	4 (+1)	—			
	251	6	—			
	321	6	—			



Built-in rotary joint



External rotary joint

(+1) port is exclusive for pneumatic pressure.
Note) Not fitted for RSM100, TC, DM, or TBX160.
For tables of TBX 200 size or more and 400 size or more, confer with Kitagawa separately.
Rotary joint is specifically for pneumatic/hydraulic drives, therefore it cannot be used with coolant, etc.

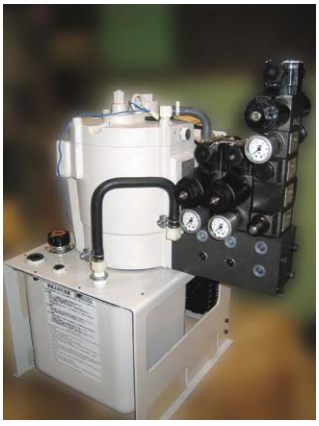
■Hydraulic pump unit

〔specifications〕

- Service pressure:3.4MPa (35kgf/cm^2)
- Adjustable pressure range:1.5~6.9MPa (15~70kgf/cm^2)
- Power source:AC3ϕ 200/220V 50/60Hz

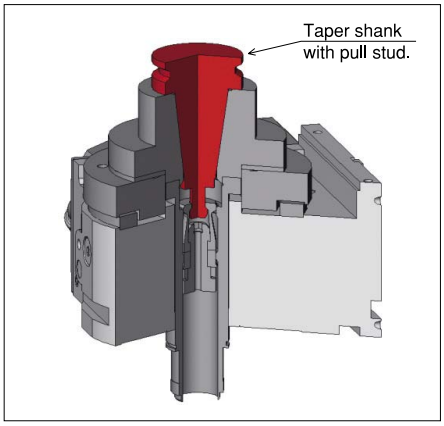
HUP 0 7 3 - D ＊＊

- HUP: Type
- 073: Number of blocks; Tank capacity 07:7ℓ 10:10ℓ
- D: Solenoid voltage D:DC A:AC
- ＊＊: Serial number



■Pull-stud type

Pull studs can be used to position and fix jigs or work pieces easily.
For more information, contact Kitagawa.



RJ

NC ROTARY TABLE

Air Hydraulic Booster

AB series AB10T・AB25T・AB50T

●External mounted Air-Hydraulic Booster
●A unit changing air pressure to hydraulic pressure
●High clamping force is produced using a standard air supply

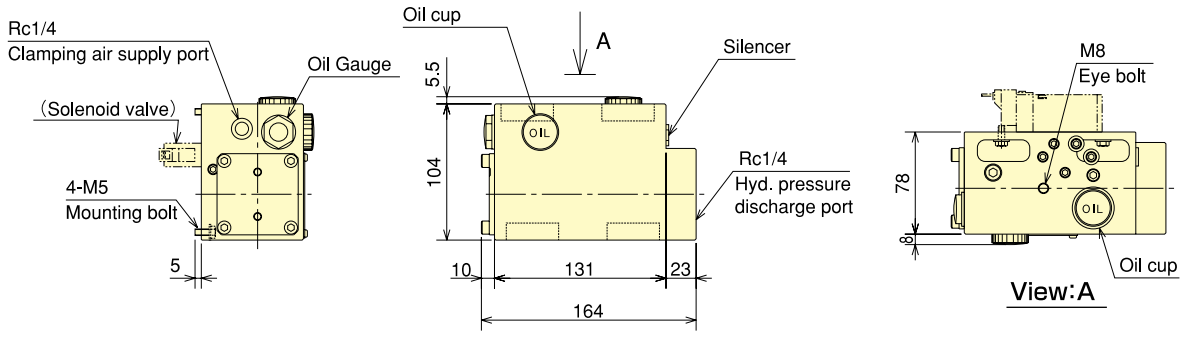
■ Specifications

specifications / Model	Air pressure MPa	Multiplication ratio	Hydraulic pressure (theoretically boosted) MPa	Recommended oil	Mass of product	Applicable unit	
AB10T	0.4～0.5	1:7.5	3～3.75	Turbin oil #32	Approx. 3 kg	—	
AB25T	0.4～0.45	1:8	3.2～3.6		Approx. 5 kg	TT	251、321
AB50T					Approx. 6 kg	TR/TU	400、500、630

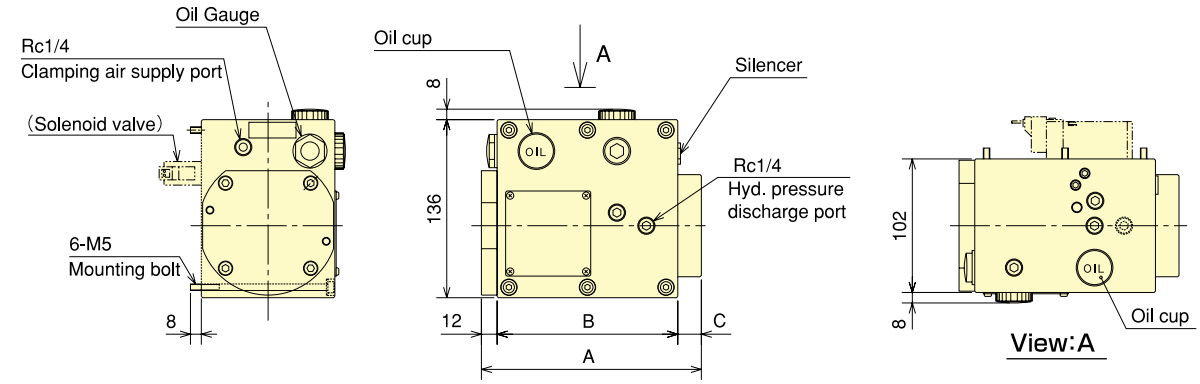
■ Dimensions

Note) Oil cap and oil gauge can be changed by mounting status of NC rotary table.

AB10T



AB25T/50T



※Solenoid is not included. Consult to arranged solenoid appropriate to each specification.

■ Dimensions

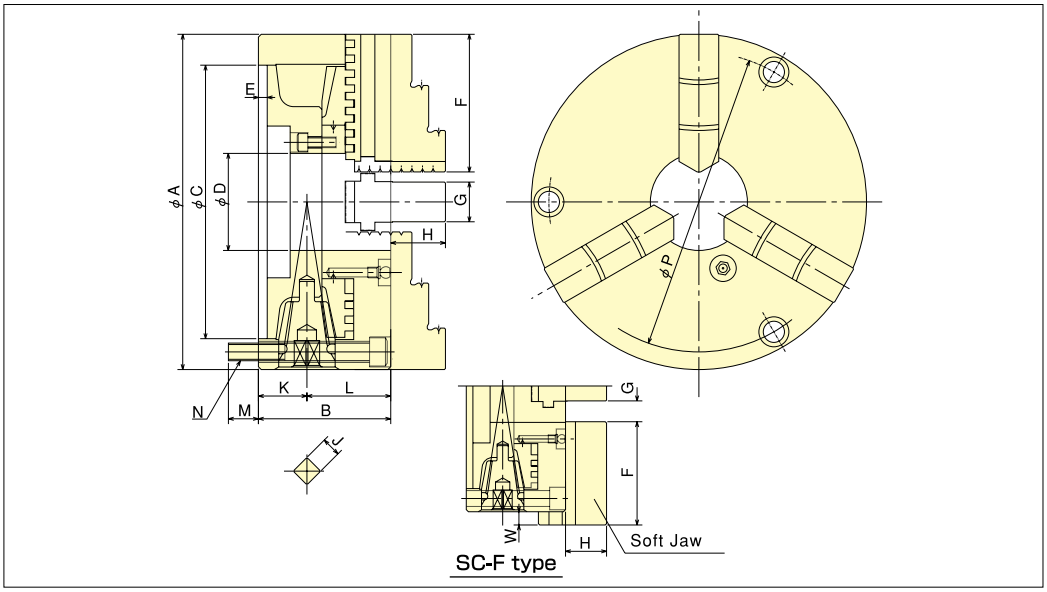
Dimensions / Model	A	B	C
AB25T	168	138	18
AB50T	251	169	70

CHUCK Scroll Chuck SC・JN series

Only Kitagawa can offer a complete NC Rotary Table and workholding solution

※SC-N, JN-N : CE correspondence.

■Dimensions



■Dimensions

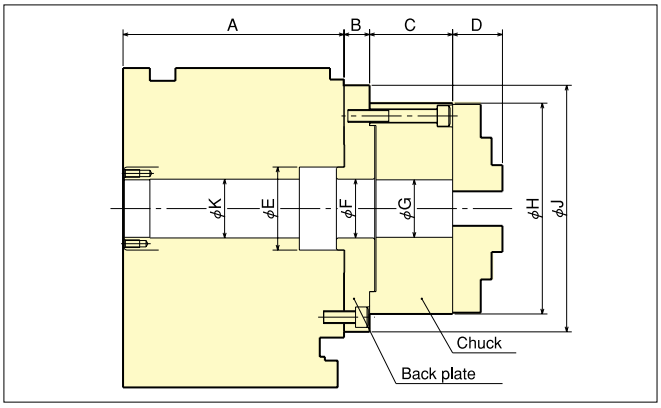
①	②	③	A	B	C (H6)	D	E	F	G	H ①	H ②	H ③	J	K	L	M	N	P	W (MAX)	W (MIN)
SC-3-106	–	–	85	45	60	16	3.5	35	11	15	–	–	7	17	28	12	3-M6	71	1.5	-7
SC-4-105	SC-4F-112	SC-4N	110	58	80	24	4.5	42	14	18	18	18	8	24.5	33.5	11	3-M8	93	2.5	-12
SC-5-107	SC-5F-113	–	130	60	100	32	4.5	50	16	20	20	–	8	22.5	37.5	13.6	3-M8	113	3.5	-14.5
JN06-101	JN06T102	JN06TN	165	65	130	45	5	66	20.5	27	39	39	10	24	41	17	3-M10	145	–	–
JN07-101	JN07T102	JN07TN	190	75	155	55	5	78	22.5	31	42	42	11	27.5	47.5	17	3-M10	170	–	–
JN09-101	JN09T102	JN09TN	232	84	190	70	6	88	26.5	33	50	50	12	29.5	54.5	19	3-M12	208	–	–
JN10-101	JN10T102	JN10TN	273	86	230	85	6	98	26.5	37	54	54	12	31.5	54.5	18.5	3-M12	248	–	–
JN12-101	JN12T102	JN12TN	310	96	260	96	7	113	30.5	44	56	56	14	31.5	64.5	18.5	3-M12	282	–	–
SC-14-103	–	–	355	110	300	100	7	132	35	52	–	–	15	38	72	27	6-M14	328	–	–
SC-16-113	–	–	405	120	345	110	8	146	40	58	–	–	15	43.5	76.5	27	6-M14	375	–	–

■Specifications

①	②	③	Max.Gripping Force (kN)	Net Weight with Soft top jaw (kg)	Moment of inertia (kg・m²)	Gripping range Outer dia.φ (mm)	Gripping range Inner dia.φ (mm)	Handle torque (N・m)
SC-3-106	–	–	9	1.5	0.001	2～70	24～64	29.4
SC-4-105	SC-4F-112	SC-4N	12	3.1	0.004	3～95	29～84	44.1
SC-5-107	SC-5F-113	–	15	4.4	0.009	3～110	33～100	63.7
JN06-101	JN06T102	JN06TN	31	8.4	0.030	3～160	48～150	88.3
JN07-101	JN07T102	JN07TN	31	12.2	0.060	4～180	56～170	107.9
JN09-101	JN09T102	JN09TN	37	21.2	0.160	5～220	62～210	147.0
JN10-101	JN10T102	JN10TN	46	28	0.253	5～260	70～250	176.5
JN12-101	JN12T102	JN12TN	55	41	0.588	10～300	86～290	206.0
SC-14-103	–	–	40.5	54	0.950	25～315	107～290	225.6
SC-16-113	–	–	45	74	1.725	25～360	113～340	245.0

Note) 1. ①SC type and JN type, each one set of mono internal jaws and mono external jaws are attached as standard with. Soft jaws cannot be used.
2. ②SC-F type, each one set of internal jaws, external jaws and soft jaws are attached as standard.
3. When the soft jaws are used for SC-F type, use the chuck of lower specification.
4. JN-T(N) type, each one set of two piece hard jaws and two piece soft jaws are attached as standard.
5. ②SC-N type and JN-N type are chucks applying to CE certificate.

■Scroll chuck fitting dimensional drawing



■Scroll chuck fitting dimensions

Rotary Table Model		①	②	③	A	B	C	D			ϕE	ϕF	ϕG	ϕH	ϕJ	ϕK
								①	②	③						
RS	100	SC-3-106	–	–	140	15	45	15	–	–	50	30	16	85	105	32
		SC-4-105	SC-4F-112	SC-4N		–	58	18	18	18		25	24	110	–	
MR	120	SC-4-105	SC-4F-112	SC-4N	136	17	58	18	18	18	50	26	24	110	135	32.5
		SC-5F-107	SC-5F-113	–		–	60	20	20	–		34	32	130	–	
		JN06-101	JN06T102	JN06TN		14	65	39	27	27		34	45	165	165	
	160	SC-5F-107	SC-5F-113	–	145	19	60	20	20	–	50	40	32	130	165	40.5
		JN06-101	JN06T102	JN06TN		–	65	39	27	27		40	45	165	–	
		JN07-101	JN07T102	JN07TN		20	75	42	31	31		41	55	190	190	
	200	JN06-101	JN06T102	JN06TN	173	20	65	39	27	27	65	46	45	165	193	46
		JN07-101	JN07T102	JN07TN		–	75	42	31	31		56	55	190	–	
	250	JN06-101	JN06T102	JN06TN	180	21	65	39	27	27	100	46	45	165	235	71
		JN07-101	JN07T102	JN07TN		21	75	42	31	31		56	55	190	236	
		JN09-101	JN09T102	JN09TN		–	84	50	33	33		71	70	232	–	
		JN10-101	JN10T102	JN10TN		20	86	54	37	37		85	85	273	273	
		JN12-101	JN12T102	JN12TN		21	96	56	44	44		90	96	310	310	
	320	JN09-101	JN09T102	JN09TN	210	25	84	50	33	33	130	120	70	232	320	106
		JN10-101	JN10T102	JN10TN		25	86	54	37	37		85	85	273	320	
		JN12-101	JN12T102	JN12TN		–	96	56	44	44		98	96	310	–	
GT	200	JN06-101	JN06T102	JN06TN	178	20	65	39	27	27	65	46	45	165	193	46
		JN07-101	JN07T102	JN07TN		–	75	42	31	31		56	55	190	–	
	250	JN06-101	JN06T102	JN06TN	185	21	65	39	27	27	100	46	45	165	235	71
		JN07-101	JN07T102	JN07TN		21	75	42	31	31		56	55	190	236	
		JN09-101	JN09T102	JN09TN		–	84	50	33	33		71	70	232	–	
		JN10-101	JN10T102	JN10TN		20	86	54	37	37		85	85	273	273	
		JN12-101	JN12T102	JN12TN		21	96	56	44	44		90	96	310	310	
	320	JN09-101	JN09T102	JN09TN	210	25	84	50	33	33	130	120	70	232	320	106
		JN10-101	JN10T102	JN10TN		25	86	54	37	37		85	85	273	320	
		JN12-101	JN12T102	JN12TN		–	96	56	44	44		98	96	310	–	
T*X	160	JN06-101	JN06T102	JN06TN	145	–	65	39	27	27	50	40	45	165	–	40
		JN07-101	JN07T102	JN07TN		20	75	42	31	31		41	55	190	190	
	200	JN06-101	JN06T102	JN06TN	176	20	65	39	27	27	75	52	45	165	193	52
		JN07-101	JN07T102	JN07TN		–	75	42	31	31		66	55	190	–	
		JN09-101	JN09T102	JN09TN		15	84	50	33	33		65	70	232	230	
	250	JN06-101	JN06T102	JN06TN	210	21	65	39	27	27	105	56	45	165	236	78
		JN07-101	JN07T102	JN07TN		21	75	42	31	31		56	55	190	236	
		JN09-101	JN09T102	JN09TN		–	84	50	33	33		71	70	232	–	
		JN10-101	JN10T102	JN10TN		20	86	54	37	37		95	85	273	273	
	320	JN09-101	JN09T102	JN09TN	225	–	84	50	33	33	135	110	70	232	–	110.5
		JN10-101	JN10T102	JN10TN		–	86	54	37	37		98	85	273	–	
		JN12-101	JN12T102	JN12TN		–	96	56	44	44		98	96	310	320	
		SC-14-103	–	–		25	110	52	52	–		100	100	355	355	
T*	400	JN10-101	JN10T102	JN10TN	250	23	86	54	37	37	180	86	85	273	314	150
		JN12-101	JN12T102	JN12TN		–	96	56	44	44		98	96	310	–	
		SC-14-103	–	–		–	110	52	52	–		100	100	355	–	
	500	JN12-101	JN12T102	JN12TN	250	20	96	56	44	44	200	96	96	310	352	170.5
		SC-14-103	–	–		–	110	52	52	–		150	100	355	–	
	630	JN12-101	JN12T102	JN12TN	330	27	96	56	44	44	280	100	96	310	416	250
		SC-16-113	–	–		36	120	58	58	–		260	110	405	422	

Note) Consult our company about an order except the above combination.

WORK GRIPPER

Work Gripper AS series

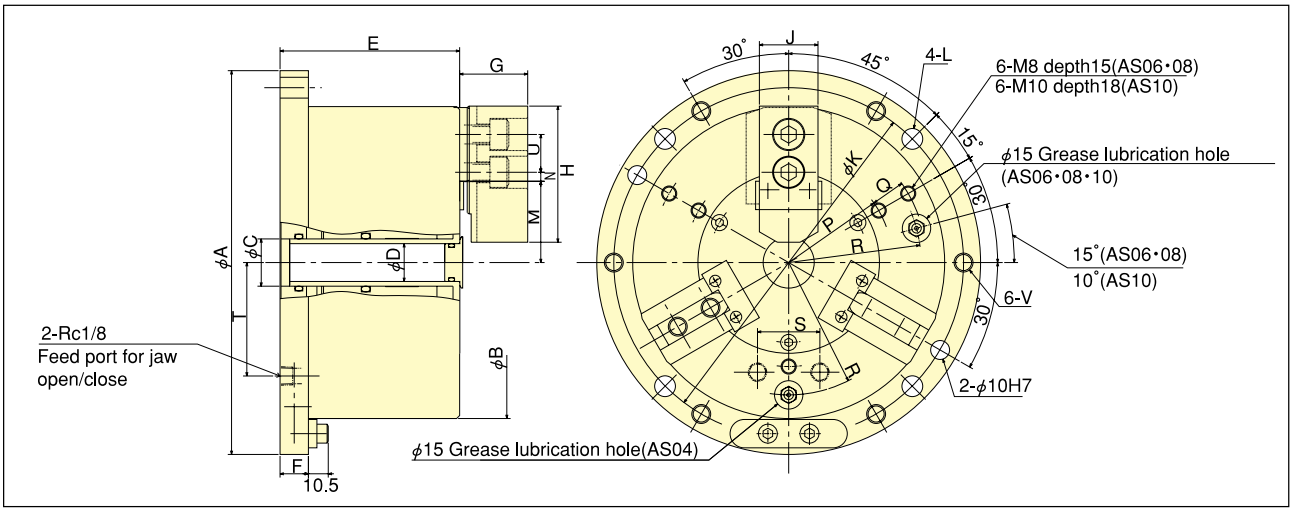
Only Kitagawa can offer a complete NC Rotary Table and workholding solution

- Compact and light weight design with integrated air cylinder
- Easy to connect direct air supply or through rotary joint
- Open centre allows for bar work or air blast
- Soft jaws are compatible with Kitagawa standard power chucks

■Specifications

Specifications / Model	Jaw stroke (in dia.) (mm)	Gripping force [pneumatic 0.6MPa] (kN)	Net Weight (kg)	Max. pneumatic service pressure (MPa)	Applicable soft jaws	Gripping Dia (mm) max.	Gripping Dia (mm) min.	Moment of intertia (kg・m²)
AS04	5.2	7.5	7.3	0.7	SB04B1	110	10	0.014
AS06	5.2	21	16	0.7	SB06B1	165	23	0.078
AS08	6.3	33	27.7	0.7	SB08B1	210	30	0.180
AS10	6.3	48	42.5	0.7	SB10A1	254	50	0.315

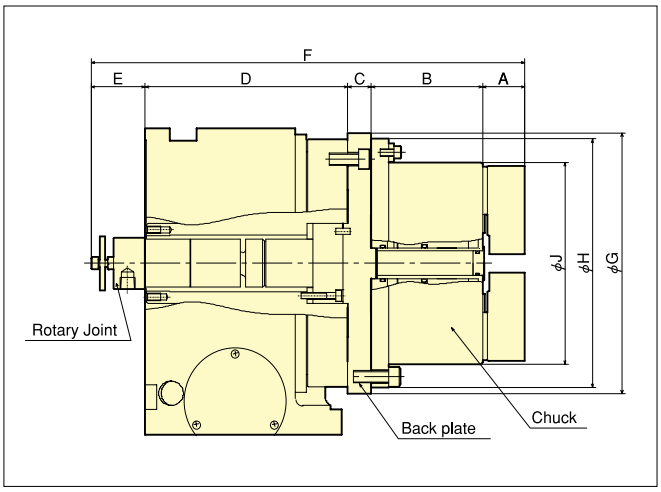
■Dimensions



■Dimensions

Dimensions / Model	A	B	C	D	E	F	G	H	J	K	L	Mmax.	Mmin.	Nmax.	Nmin.	P	Q	R	S	T	U	V
AS04	148	110	20H7	-	90	15	27	55	23	130	9	25.5	22.9	9.75	6.75	-	-	43	33	34	14	M 8
AS06	203	165	25H7	20	95	15	36	72	31	185	11	44.5	41.9	9.25	4.75	55	18	70	33	60	20	M10
AS08	248	210	36H7	30	106	15	42	95	35	230	11	53	49.85	14.75	8.75	68	25	90	33	80	25	M10
AS10	300	254	50H7	43	110	16	46	110	40	280	13	66	62.85	16	8.5	85	30	110	33	95	30	M12

■Work gripper fitting dimensions drawing



■Work gripper fitting dimensions

Rotary Table Model		Chuck Model	A	B	C	D	E	F	ϕG	ϕH	ϕJ
MR	120	AS04	27	90	20	136	46	319	148	148	110
		AS06	36	95	20			333	203	200	165
	160	AS04	27	90	20	145	47	329	165	148	110
		AS06	36	95	20			343	203	203	165
	200	AS06	36	95	20	173	46	370	203	203	165
	250	AS06	36	95	25	180	78.5	414.5	230	203	165
		AS08	42	106	25			431.5	250	248	210
	320	AS10	46	110	25	210	69	460	320	300	254
GT	200	AS06	36	95	20	178	40	369	203	203	165
	250	AS06	36	95	25	185	66.5	407.5	230	203	165
		AS08	42	106	25			424.5	250	248	210
	320	AS10	46	110	25	210	57.5	448.5	320	300	254
T*X	160	AS04	27	90	20	145	48	330	148	148	110
		AS06	36	95	20			344	203	203	165
	200	AS06	36	95	20	176	47	374	203	203	165
	250	AS06	36	95	25	210	69	435	250	203	165
		AS08	42	106	25			452	250	248	210
	320	AS10	46	110	25	220	45.5	446.5	300	300	254

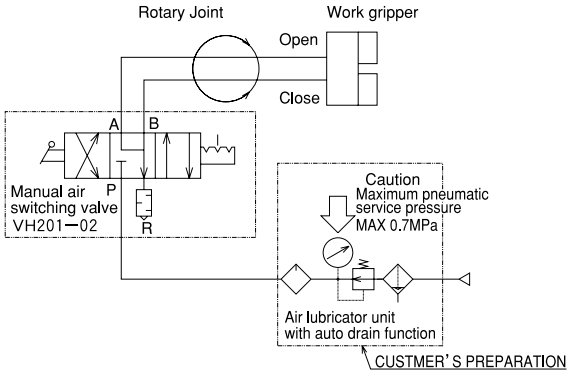
Note) Consult our company about an order except the above combination.

■Option

Manual air switching valve (made to order)

VH201-02

Maximum allowable pressure	1MPa
Operating degree	90°
Connecting bore size	Rc1/4



CHUCK

Open Centre Power Chuck B-200 series

Only Kitagawa can offer a complete NC Rotary Table and workholding solution

■Size Table

＊CE correspondence

Model \ Size	A	B	C (H6)	D	E	F	G max.	G min.	H	J	K	L max.
B-204	110	59	85	70.6	3–M10	26	3.5	– 6.5	17.5	12	38	M32×1.5
B-205	135	60	110	82.6	3–M10	33	1	– 9	20	12	45	M40×1.5
B-206	169	81	140	104.8	6–M10	45	11	– 1	19	20	60	M55×2.0
B-208	210	91	170	133.4	6–M12	52	14.5	– 1.5	20.5	30	66	M60×2.0
B-210	254	100	220	171.4	6–M16	75	8.5	–10.5	25	45	94	M85×2.0

Model \ Size	M	N	P	Q max.	Q min.	R max.	R min.	S	T	U	V	W	X (3–)	Y
B-204	24	49.5	14	11.25	6.75	23	20.3	23	2	10	15.5	4	–	–
B-205	26	54	14	19.75	7.75	26.5	23.8	23	2	10	15	4	–	–
B-206	29	66	20	22.75	9.25	32	29.25	26	2	12	16	5	M6×10	116
B-208	39	95	25	29.75	14.75	38.7	35	35	2	14	20	5	M6×12	150
B-210	43	110	30	33.75	14.25	51	46.6	40	2	16	22	5	M8×15	190

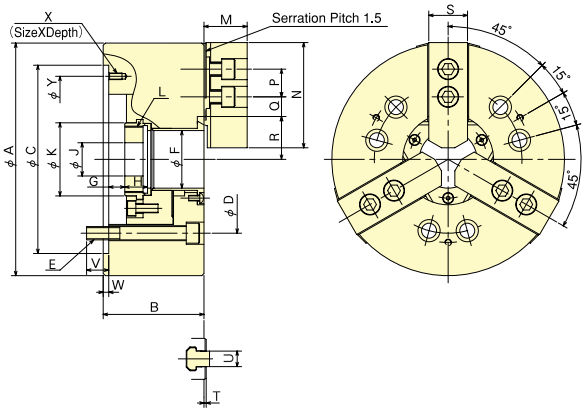
※Fitting of B-204 or 205 requires 120° pitch-3

■Specifications

Model \ Specifications	Thru-Hole (mm)	Gripping Dia (mm) Max.	Gripping Dia (mm) Min.	Jaw stroke (diameter) (mm)	Plunger Stroke (mm)	Max.Draw Bar Pull Force (kN)	Max.Gripping Force (kN)
B-204	26	110	7	5.4	10	14	28.5
B-205	33	135	12	5.4	10	17.5	36
B-206	45	169	16	5.5	12	22	57
B-208	52	210	13	7.4	16	34.8	86
B-210	75	254	31	8.8	19	43	111

Model \ Specifications	Net Weight with Soft top jaw (kg)	Moment of inertia (kg·m²)	Matching Hard top jaw	Matching Soft top jaw
B-204	4	0.007	HB04N1	SB04N1
B-205	6.7	0.018	HB04N1	SB05N1
B-206	11.9	0.058	HB06B1	SB06L1A
B-208	22.3	0.170	HB08A1	SB08B1
B-210	34.5	0.315	HB10A1	SB10B1

■Dimensions



ROTARY CYLINDER

Compact Closed Centre hydraulic rotary cylinder M series

＊CE correspondence

■Size Table

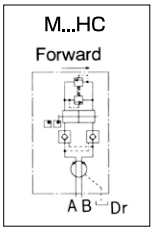
Model \ Size	A	B	C (h7)	D	E	F	G (H8)	H	J	K
M1120HC21N	110	20	145	128	42	30	22	M20×2.5	30	15
M1221HC21N	120	21	168	145	44	32	22	M20×2.5	30	15
M1330HC21N	130	30	168	150	51	36	26	M24×3.0	35	15

Model \ Size	L	M	N	P max.	P min.	Q max.	Q min.	R	S	T	U
M1120HC21N	135	125	14	60	40	72	52	26	159.2	M 8×1.25	14
M1221HC21N	138	128	14	60	39	75	54	27	182.2	M10×1.5	17
M1330HC21N	144	134	18	60	30	79	49	37	182.2	M10×1.5	17

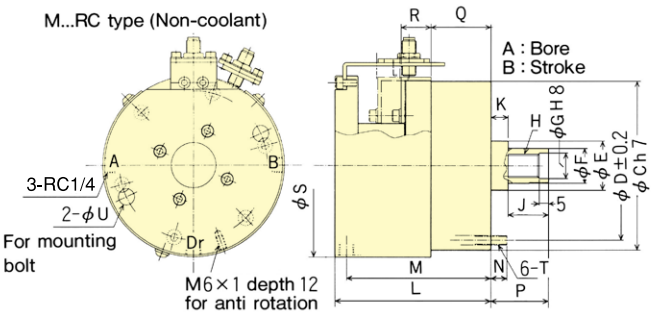
■Specifications

Model \ Specifications	Piston thrust force Pushing (in kN)	Piston thrust force Pulling (in kN)	Total leakage (ℓ/min)	Mass (kg)	Moment of intertia (kg·m²)
M1120HC21N	28	27	1.2	8.2	0.016
M1221HC21N	39	38	1.2	10.2	0.028
M1330HC21N	47	45	1.2	10.3	0.029

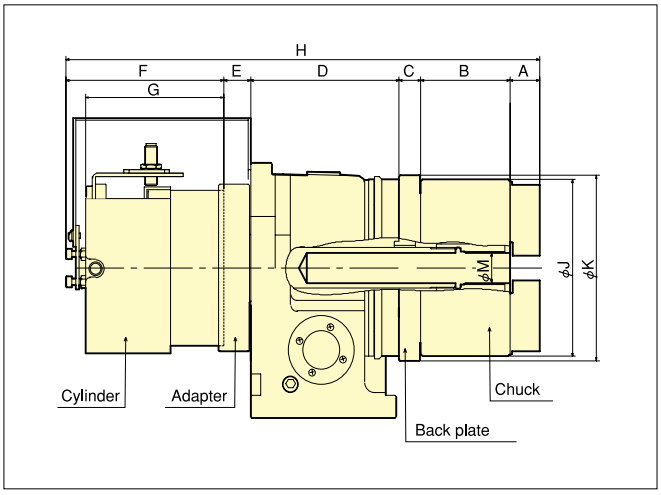
Note) 1. Piston thrust force : maximum hydraulic service pressure of 3.5MPa on M1120HC, 4.0MPa on M1221HC, and 4.0MPa on M1330HC.
2. Total leakage values shown are at hydraulic pressure of 3.0MPa and fluid temperature of 50℃.
3. Proximity switch : Model BES516-325-E3R (B & Plus KK) DC12/24V 200mA PNP
4. Route the pipe so that the back pressure into the drain hose will be 10 kPa or less.
When the non-draintype of cylinder is required contact with KITAGAWA.
5. When using on devices other than a NC table, be sure of the specifications described on Kitagawa's catalogues for chucks and cylinders.



■Dimensions



■Fitting dimension drawing for power chuck B-200 series, cylinder M series



■Fitting dimensions for power chuck B-200 series, cylinder M series

Rotary Table Model		Chuck Model	Cylinder Model	A	B	C	D	E	F	G	H	φJ	φK	φM	Pressure(MPa)
MR	160	B-205	M1120HC21N	26	62	21	145	27	154	135	433	135	165	33	2.27
		B-206		39	81	21					467	165	169	45	2.85
	200	B-206	M1120HC21N	39	81	21	173	27	154	135	495	169	190	45	2.85
	250	B-206	M1120HC21N	39	81	19	180	17	154	135	490	169	230	45	2.85
	320	B-210	M1330HC21N	43	100	19	210	20	155	144	547	254	304	75	3.82
GT	200	B-206	M1120HC21N	39	81	21	178	27	154	135	500	169	190	45	2.85
	250	B-206	M1120HC21N	39	81	19	185	17	154	135	495	169	230	45	2.85
	320	B-210	M1330HC21N	43	100	19	210	20	155	144	547	254	304	75	3.82
T*X	160	B-205	M1120HC21N	26	60	22	145	27	154	135	434	135	140	33	2.27
		B-206		39	81	16					462	140	169	45	2.85
	200	B-206	M1120HC21N	39	81	22	176	26	159	135	503	169	169	45	2.85
		B-208	M1221HC21N	39	91	17		26	157	138	506	170	210	52	3.66
	250	B-206	M1120HC21N	39	81	22	210	17	159	135	528	169	183	45	2.85
		B-208	M1221HC21N	39	91	22		17	157	138	526	210	210	52	3.66
		B-210	M1330HC21N	43	100	22		21	151	144	504	254	308	75	3.82
	320	B-210	M1330HC21N	43	100	19	225	20	151	144	558	254	308	75	3.82

Note) Consult our company about an order except the above combination.

CHUCK

Closed Centre Power Chuck N series

Only Kitagawa can offer a complete NC Rotary Table and workholding solution

＊CE correspondence

■Size Table

Model \ Size	A	B	C (H6)	F	H	J	K	L	M	N max.	N min.	O max.
N-05	135	55	80	7	100	–	3-M8	14	19	30.4	27.2	11.25
N-06	165	74	140	5	104.8	21	6-M10	14	20	37.8	33.55	13.75
N-08	210	85	170	5	133.4	25	6-M12	20	25	46.3	41.9	22.25
N-10	254	89	220	5	171.4	34	6-M16	18	30	51.1	46.7	30.75
N-12	304	106	220	6	171.4	34	6-M16	18	30	61	55.75	48.75

Model \ Size	O min.	P max.	P min.	Q	R	S	T	U	V	W	X	Y	Z
N-05	6.75	9	−6	23	10	35	M12×1.75	3	28	29	62	–	–
N-06	7.75	101.5	81.5	31	12	36	M16×2.0	4	34	35	72	M6×10	116
N-08	11.75	127	106	35	14	36	M20×2.5	5	38	42	95	M6×12	150
N-10	11.25	158	133	40	16	36	M20×2.5	5	45	46	110	M8×15	190
N-12	12.75	163	133	50	18	36	M20×2.5	5	50	54	129	M8×15	190

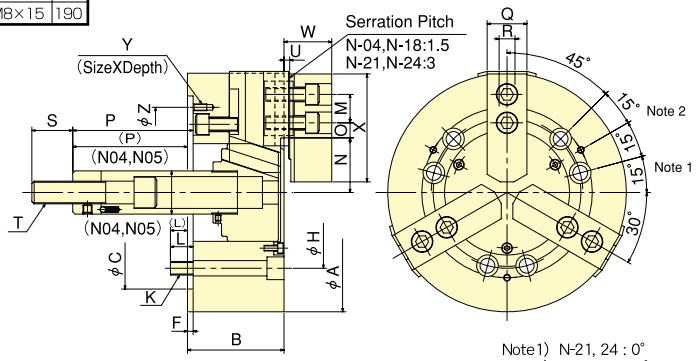
※Fitting of N-05 at 120°pitch-3

■Specifications

Model \ Specifications	Jaw stroke (diameter) (mm)	Plunger Stroke (mm)	Gripping Dia mm max.	Gripping Dia mm min.	Max.Draw Bar Pull Force (kN)	Max.Gripping Force (kN)
N-05	6.4	15	135	16	8.2	25.2
N-06	8.5	20	165	19	18	52.5
N-08	8.8	21	210	23	25	75
N-10	8.8	25	254	24	29	108
N-12	10.5	30	304	26	41	156

Model \ Specifications	Net Weight with Soft top jaw (Kg)	Moment of inertia (kg·m²)	Matching Hard top jaw	Matching Soft top jaw
N-05	6.2	0.015	HB05C1	SB05B1
N-06	13	0.045	HB06B1	SB06B1
N-08	25	0.138	HB08A1	SB08B1
N-10	37	0.300	HB10A1	SB10B1
N-12	57.3	0.725	HB12B1	SB12A1

■Dimensions



※With standard blank soft top jaw.

Note1) N-21, 24 : 0°
Note2) N-21, 24: 60°

ROTARY CYLINDER

Compact Closed Centre hydraulic rotary cylinder M series

＊CE correspondence

■Size Table

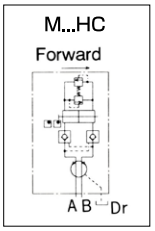
Model \ Size	A	B	C (h7)	D	E	F	G (H8)	H	J	K
M1120HC21N	110	20	145	128	42	30	22	M20×2.5	30	15
M1221HC21N	120	21	168	145	44	32	22	M20×2.5	30	15
M1330HC21N	130	30	168	150	51	36	26	M24×3.0	35	15

Model \ Size	L	M	N	P max.	P min.	Q max.	Q min.	R	S	T	U
M1120HC21N	135	125	14	60	40	72	52	26	159.2	M 8×1.25	14
M1221HC21N	138	128	14	60	39	75	54	27	182.2	M10×1.5	17
M1330HC21N	144	134	18	60	30	79	49	37	182.2	M10×1.5	17

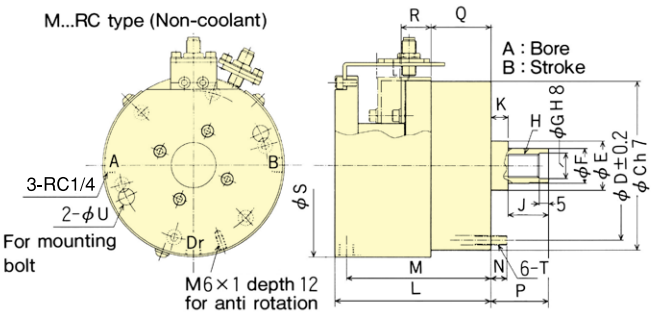
■Specifications

Model \ Specifications	Piston thrust force Pushing (in kN)	Piston thrust force Pulling (in kN)	Total leakage (ℓ/min)	Mass (kg)	Moment of intertia (kg·m²)
M1120HC21N	28	27	1.2	8.2	0.016
M1221HC21N	39	38	1.2	10.2	0.028
M1330HC21N	47	45	1.2	10.3	0.029

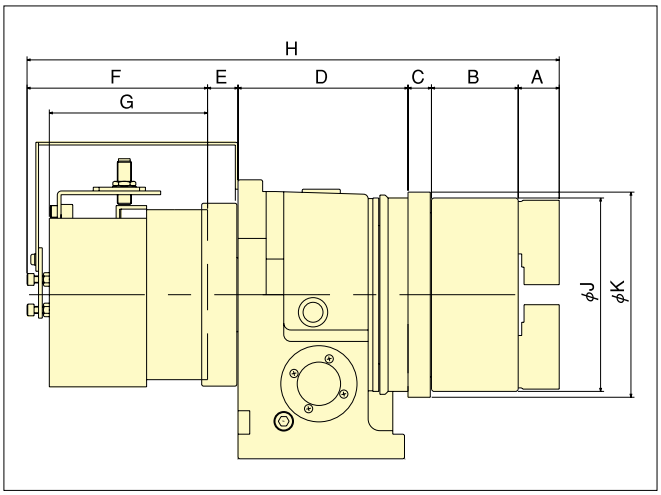
Note) 1. Piston thrust force : maximum hydraulic service pressure of 3.5MPa on M1120HC, 4.0MPa on M1221HC, and 4.0MPa on M1330HC.
2. Total leakage values shown are at hydraulic pressure of 3.0MPa and fluid temperature of 50℃.
3. Proximity switch : Model BES516-325-E3R (B & Plus KK) DC12/24V 200mA PNP
4. Route the pipe so that the back pressure into the drain hose will be 10 kPa or less.
When the non-draintype of cylinder is required contact with KITAGAWA.
5. When using on devices other than a NC table, be sure of the specifications described on Kitagawa's catalogues for chucks and cylinders.



■Dimensions



■ N series power chuck, M series cylinder mounting dimensional drawing



■ N series power chuck, M series cylinder mounting dimensional list

Rotary Table Model		Chuck Model	Cylinder Model	A	B	C	D	E	F	G	H	ϕJ	ϕK	Pressure(MPa)
MR	160	N-05	M1120HC21N	29	55	21	145	27	154	135	431	135	165	1.05
		N-06		35	74	21					456	165	165	2.33
	200	N-06	M1120HC21N	35	74	21	173	27	154	135	484	165	193	2.33
	250	N-06	M1120HC21N	35	74	19	180	17	154	135	479	165	230	2.33
	320	N-10	M1330HC21N	46	89	19	210	20	155	144	539	254	304	2.58
GT	200	N-06	M1120HC21N	35	74	21	178	27	154	135	489	165	193	2.33
	250	N-06	M1120HC21N	35	74	19	185	17	154	135	484	165	230	2.33
	320	N-10	M1330HC21N	46	89	19	210	20	155	144	539	254	304	2.58
T*X	160	N-05	M1120HC21N	29	55	21	145	27	154	135	431	135	140	1.05
		N-06		35	74	16					451	140	165	2.33
	200	N-06	M1120HC21N	35	74	22	176	26	159	135	492	165	165	2.33
		N-08	M1221HC21N	42	85	17		26	157	138	503	170	210	2.63
	250	N-06	M1120HC21N	35	74	22	210	17	159	135	517	165	183	2.33
		N-08	M1221HC21N	42	85	22		17	157	138	533	210	210	2.63
		N-10	M1330HC21N	46	89	22		21	151	144	539	254	254	2.58
	320	N-10	M1330HC21N	46	89	19	225	20	151	144	550	254	308	2.58
		N-12		54	106	25		34	151	144	581	304	304	3.64

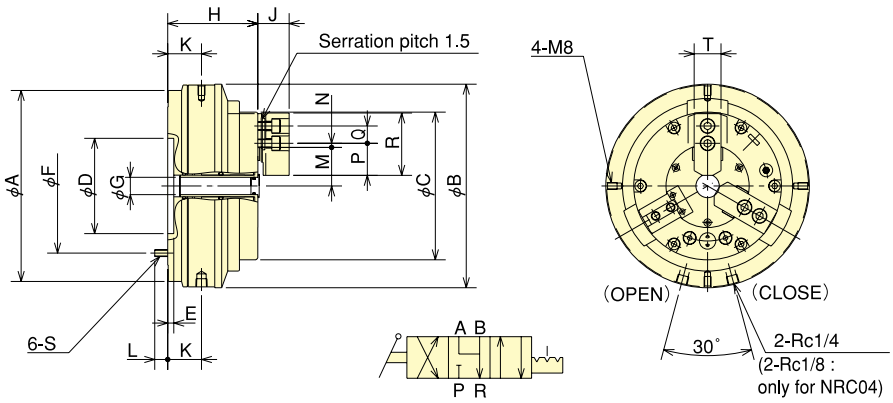
Note) Consult our company about an order except the above combination.

Rotary Chuck NRC series

Only Kitagawa can offer a complete NC Rotary Table and workholding solution

- ●Exclusive air-operated chuck
- ●Integrated pneumatic cylinder
  Can easily be fitted to TBX range of tables

■Dimensions



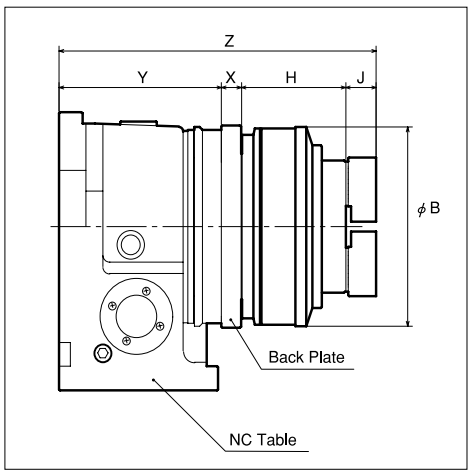
Note) Exhaust centre Solenoid Valve to be used. See page 100.

■Dimensions

Model \ Dimensions	A	B	C	D(H7)	E	F	G	H	J	K	L	M max.	M min.	N max.	N min.	P	Q	R	S	T
NRC04	157	170	113	80	6	100	—	93	27	33	14	25.5	22.9	9.75	6.75	28	14	55	M6	23
NRC06	220.5	235	170.5	110	7	155	20	104	36	39	15	44.5	41.9	9.25	4.75	37	20	72	M8	31
NRC08	266	280	216	110	8	200	30	117	42	41.5	17	53	49.85	14.75	8.75	46	25	95	M8	35
NRC10	303	305	253	140	8	235	43	120	46	41.5	21	66	62.85	19	8.5	50	30	110	M10	40

■Specifications

Model \ Specifications	Plunger Stroke (mm)	Jaw stroke (in Dia.) (mm)	Gripping force per Jaw kN Air pressure at 0.6MPa	Max. air pressure (MPa)	Matching soft top jaw	Gripping Dia. (mm) Max.	Gripping Dia. (mm) Min.	Max. rotation (min^{-1})	Rotary torque (N·m)	Mass of Product (kg) (With Standard Soft Jaw)
NRC04	15	5.2	2.5	0.7	SB04B1	110	10	100	9.8	10
NRC06	15	5.2	7	0.7	SB06B1	165	23	72	9.8	22
NRC08	15	6.3	10.8	0.7	SB08B1	210	30	60	9.8	27.7
NRC10	15	6.3	16	0.7	SB10A1	254	50	53	9.8	42.5



■Rotary Chuck Fitting Dimensions

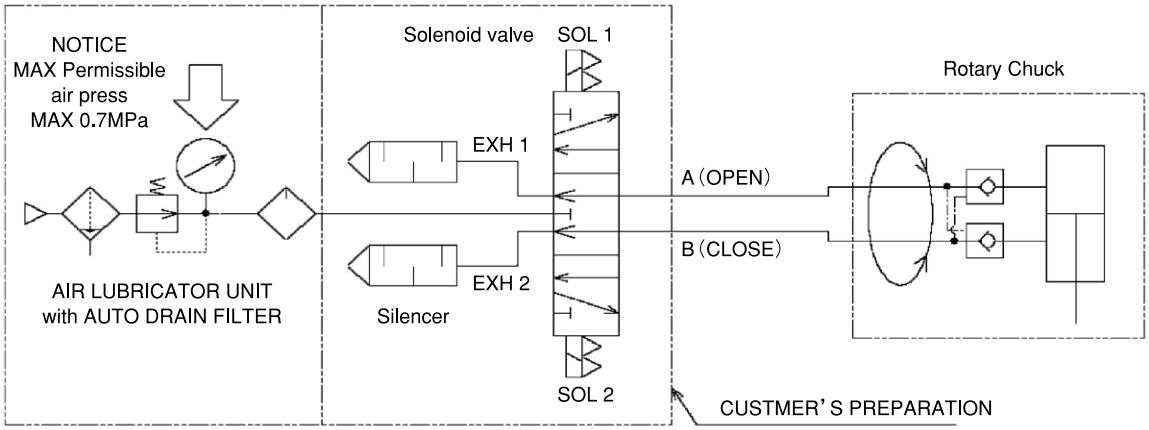
Rotary Table Model		Chuck model	B	H	J	X	Y	Z
RS	100	NRC04	170	93	27	15	140	275
MR	120	NRC04	170	93	27	18	136	274
	160	NRC04	170	93	27	18	145	283
		NRC06	235	104	36	20		305 (Note1)
	200	NRC04	170	93	27	18	173	311
		NRC06	235	104	36	20		333 (Note1)
	250	NRC06	235	104	36	20	180	340
		NRC08	280	117	42	21		360 (Note1)
	320	NRC10	315	120	46	22	210	398
GT	200	NRC04	170	93	27	18	178	283
		NRC06	235	104	36	20		305
	250	NRC06	235	104	36	20	185	486
		NRC08	280	117	42	21		336
	320	NRC10	315	120	46	22	210	370
T*X	160	NRC04	170	93	27	18	145	390
		NRC06	235	104	36	20		413
	200	NRC04	170	93	27	20	176	
		NRC06	235	104	36	20		
	250	NRC06	235	104	36	20	210	
		NRC08	280	117	42	21		
	320	NRC10	305	120	46	22	225	

Note : Consult our company in following cases. 1. Anti-rotation bracket mounting position required. 2. NRC chuck interferes with Clamping Device. 3. Horizontal mounting use. 4. Another combination.

Piping and operation details for NRC chuck

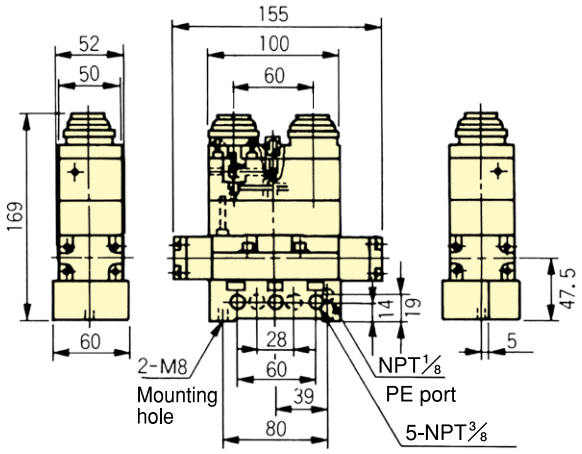
The specified solenoid must have 4 positions and 3 directions with a centre exhaust. After the solenoid valve has been switched and the chuck jaws opened or closed the solenoid valve must return to the centre, neutral position. Jaw movement occurs immediately after the solenoid is switched however, it will take a short amount of time before full gripping force is achieved. The amount of time required can be checked by fitting a pressure gauge to the chuck surface. For normal operation the pressure gauge can be removed and the required amount of time set as a dwell in the machine program. The solenoid valve must always be returned to the neutral position when the part has been gripped or removed. The NC Rotary Table should only be indexed when the solenoid valve is in the neutral position.

(NRC08 is installed on TMX250)



AIR DIAGRAM

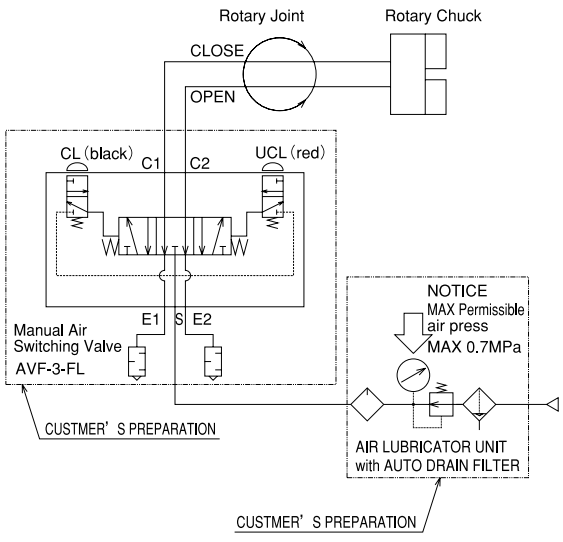
■Manual air switching valve AVF-3-FL (made-to-order)



Light weight compact push button valve designed exclusively to simplify pipe layout for NRC chuck operation.

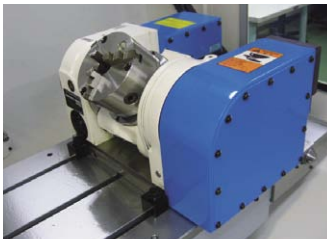
Service pressure	0~1MPa
Withstanding pressure	1.5MPa
Push button controlling force	4kg
Connecting bore size	NPT3/8

Note) An adaptor plug is required to have Rc connecting bore.



AIR DIAGRAM

Chuck Combinations



TT101 fitted with SC-4-105

■Recommended Combinations

The combinations below are only a fraction. See pages 99 through 108 for more details of the chucks not listed here.

Model \ Chuck type	Scroll chuck	Power chuck	Work gripper	Rotary chuck
RSM100	SC-4-105 SC-4F-112 SC-4N		AS04	NRC04
TM2100 TM3100	SC-4-105 SC-4F-112 SC-4N			
MR120	SC-5-107 SC-5F-113		AS04	NRC04
CK160	JN06-101 JN06T102 JN06TN			NRC06
CKR160			AS06	
MR160 MX160 TMX160 TM2160 TM3160	JN06-101 JN06T102 JN06TN	N-06 B-206	AS06	NRC06
RK200	JN07-101 JN07T102 JN07TN		AS06	NRC06
MR200 GT200 TMX200 TUX200	JN07-101 JN07T102 JN07TN	N-06 B-206	AS06	NRC06
MR250 GT250 TMX250 TUX250	JN09-101 JN09T102 JN09TN	N-10 B-210	AS08	NRC06 NRC08
MR320 GT320 TRX320 TUX320	JN12-101 JN12T102 JN12TN	N-12	AS10	NRC10
TR400 TU400	SC-14-103	N-15		
TR500 TU500	SC-14-103	N-15		
TR630	SC-16-113	N-18		
TBX160	JN06-101 JN06T102 JN06TN			NRC06
TBX200	JN07-101 JN07T102 JN07TN			NRC06
TBX250	JN09-101 JN09T102 JN09TN			NRC06 NRC08
TBX320	JN12-101 JN12T102			NRC10
TT101 TW120 TT140	SC-4-105 SC-4F-112 SC-4N		AS04	NRC04
TT182 TW182	JN06-101 JN06T102 JN06TN		AS04	NRC06
TW251	JN09-101 JN09T102 JN09TN		AS08	NRC06
TW321	JN12-101 JN12T102 JN12TN		AS10	NRC10

Note) 1. Position the rotary table upright when mounting a power chuck.

Combinations of NC Rotary Table and Servo motor

Model \ Motor maker	FANUC AC	Mitsubishi AC	Yaskawa AC	Okuma AC	Sanyo AC	SIEMENS AC
MR120	αiF 2/5000	HF75S HA33NT	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24J	R2AA08075FXPGPM6	1FK7040-2AK71
MR160	αiF 2/5000	HF75T HA33NT	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24J	R2AA08075FXPGPM6	1FK7040-2AK71
CK160	αiF 2/5000	HF75T	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24J	R2AA08075FXPGPM6	—
MX160	—	—	SGMAH-08A4A6S SGMAS-08A2A6S	—	R2AA08075FXPGPM6	—
RK200	αiS 8/4000	HC153T HF154	SGMSV-30A3A2S SGMSV-09A3A2S SGMSV-13A3A2S	BL-ME80J	R2AA13120BXP4PM	—
MR200 MRT200 GT200	αiF 4/5000	HF104T HC103T	SGMAH-08A4A6S SGMGH-05A2A3S SGMAS-08A2A6S	∗2) BL-MC25J ∗2) BL-ME40J	R2AA08075FXPGPM6 R2AA08100HXPGPM	1FK7042-2AF71
MR250 GT250	αiF 4/5000	HF104T HC103T	SGMPH-15A4A6S SGMGH-09A2A3S	∗2) BL-MC25J ∗2) BL-ME40J	R2AAB8100HXPGPM	1FK7042-2AF71
MR320 GT320	αiF 8/3000	HF104T HC103T	SGMPH-15A4A6S SGMGH-09A2A3S	∗2) BL-MC50J ∗2) BL-ME80J	—	1FK7063-2AF71
TMX160 TBX160	αiF 2/5000	HF75T HA33NT	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24J	R2AA08075FXPGPM6	—
TMX200 TBX200 TUX200	αiF 4/5000	HF104T HC103T	SGMAH-08A4A6S SGMGH-05A2A3S SGMAS-08A2A6S	BL-MC25J BL-ME40J	R2AA08075FXPGPM6	1FK7060-2AF71
TMX250 TBX250 TUX250	αiF 4/5000	HF104T HC103T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MC50J BL-ME80J	—	1FK7060-2AF71
TRX320 TBX320 TUX320	αiF 8/3000	HF104T HC103T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MC50J BL-ME80J	—	1FK7063-2AF71
TM2100 TM3100 TM2160 TM3160	αiF 4/5000	HF104T HC103T	SGMAH-08A4A6S SGMGH-05A2A3S SGMAS-08A2A6S	BL-MC25J	R2AAB8100HXPGPM	—
TT101 Rotary Axis	αiF 1/5000	HA33NT	SGMAS-04A2A6S SGMPH-04A4A6S	BL-ME24J	R2AA08075FXPGPM6	1FK7032-2AK71
TT101 Tilt Axis	αiF 2/5000	HA33NT	SGMAS-08A2A6S SGMAH-08A4A6S	BL-ME24J	R2AA08075FXPGPM6	1FK7034-2AK71
TW120 TT140	αiF 2/5000	HA33NT	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24J	R2AA08075FXPGPM6	—
TT182 TW182	αiF 2/5000	HF75T HA33NT	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24J	R2AA08075FXPGPM6	1FK7040-2AK71
TW251	αiF 4/5000	HF104T HC103T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MC50J BL-ME40J	—	1FK7060-2AF71
TW321	αiF 8/3000	HF104T HC103T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MC50J BL-ME80J	—	—
TW2180	αiF 2/5000 αiS 4/5000	HF75T HA33NT	SGMAS-08A2A6S SGMAH-08A4A6S	BL-ME24J	R2AA08075FXPGPM6	—
LR320	αiF 12/4000	HF204S HC202S	SGMGH-20A2A2S	BL-MC150J	—	—
TR400 TR500 TP530	αiF 12/4000	HF204S HC202S	SGMGH-20A2A2S	BL-MC100J	—	1FK7083-2AF71
LR400 LR500 TR630	αiF 22/3000	HF354S HC352S	SGMGH-30A2A2S	BL-MC200J	—	—
DM100	βiS 0.5/6000	HC-KFS23K-S9	SGMAS-02A2A6S	—	—	—
DME100	βiS 0.5/6000	HF-KP43JW04-S6	—	—	—	—
TC100	αiF 1/5000	HA33NT	SGMPH-04A4A6S SGMAS-04A2A6S	BL-ME24J	R2AA08040FXPGPM	1FK7032-2AK71 1FK7034-2AK71 1FK7040-2AK71

Note) 1. Some motor types have difference in specifications such as the maximum rotation and the outline dimensions.
∗2. Okuma motor's mounted on MR series is a BL-MC type. GT series is a BL-ME type.
3. for the NC rotary tables listed on blue-shaded columns, standard fitting is with a servo motor with a straight shaft (without a keyway).
4. In case of the motor is not indicated in the above combination table, contact with KITAGAWA.

NC ROTARY TABLE

High-Precision Table with Scale

High indexing accuracy by mounting rotary scale at additional axis spec.

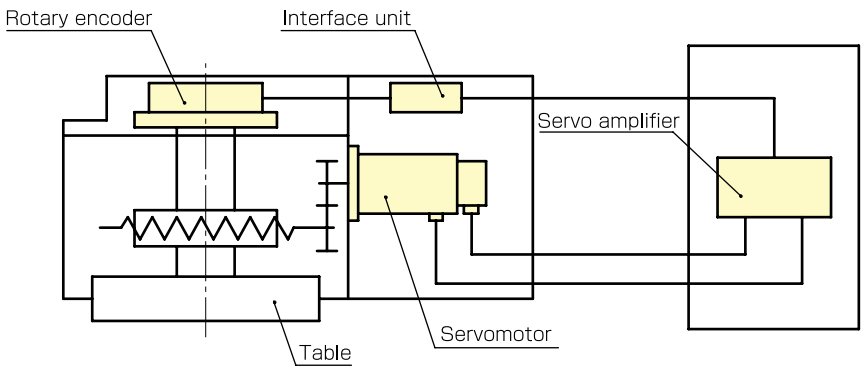
Full closed loop control becomes possible by mounting a commercial rotary scale to the NC rotary table. Highly precise indexing becomes possible by detecting the rotary angle of the table directly.

■Fitted (○) /Not Fitted (×)

NC table model		Rotary encoder (Heidenhain)	MP scale (MHI)
MR120、160、200、250、320　CK160　RK200		×	×
GT200、250、320		○	○
TMX160、200、250		○	○
THX160、200		○	○
TBX160、200、250、320		×	×
TUX200、250、320　TU400、500		○	○
TLX250、320		○	○
TRX320		○	○
TR400、500、630　TP530		○	○
TT101、120	Rotary shaft	※	×
	Tilting shaft	○	○
TT140、182、251、321	Rotary shaft	○	※
	Tilting shaft	○	○
TW120	Rotary shaft	○	×
	Tilting shaft	×	×
TW182	Rotary shaft	○	○
	Tilting shaft	×	×
TW251、321	Rotary shaft	○	○
	Tilting shaft	×	×
TW2180	Rotary shaft	×	×
	Tilting shaft	×	×

Note) 1. Inquire for accuracy details.
2. Consalt our company about the mounting of ※column.
3. Fitting a rotary scale may affect dimensions and specifications. Please consult for the details.
4. Not fitted for ones with Kitagawa controller MAC mini i series.

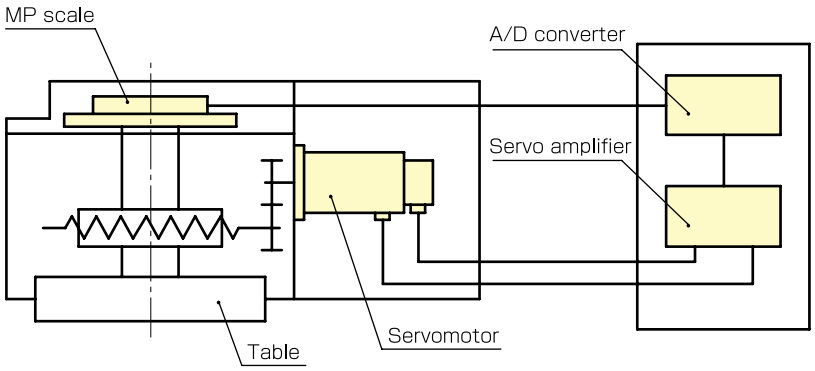
■Table configuration with Heidenhain rotary encoder



Rotary encoder	RON785	RON886	RCN727F	RCN827F
Interface unit	IBV102	IBV102	—	—
Recommended measuring pitch	0.0001°	0.00005°	0.0001°	0.0001°
Position value	—	—	27bit ABS	27bit ABS

Note) 1. RCN727F and RCN827F are compatible to FANUC serial interface. Consult for compatibilities with other NC devices.
2. The above recommended measuring pitches are of Heidenhain catalogue values.
3. Consult for fitting other than the above mentioned Rotary encoder.

■Table configuration with MHI MP scale



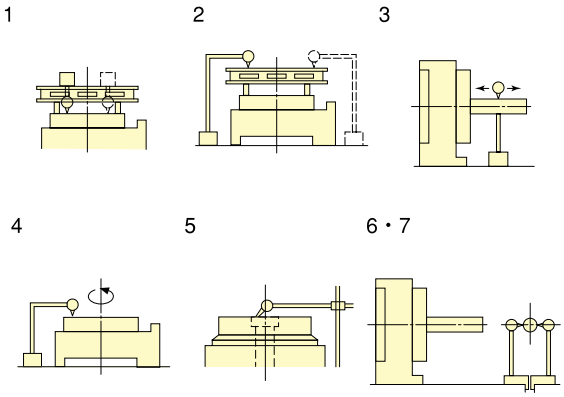
MP scale	MPI 736B	MPI 1272B
Recommended resolution	0.0001°	0.00005°
A/D converter	ADB-20J10	

Note) 1. Using the A/D converter ADB-20J60 allows accommodation for serial interface.
2. The above recommended resolutions are of MHI catalogue values.
3. A pre-amplifier is required for MPR series.
4. Consult when using non-standard preamplifier for MPR series.
5. Consult for fitting other than the above mentioned MP scales.

Accuracy specification

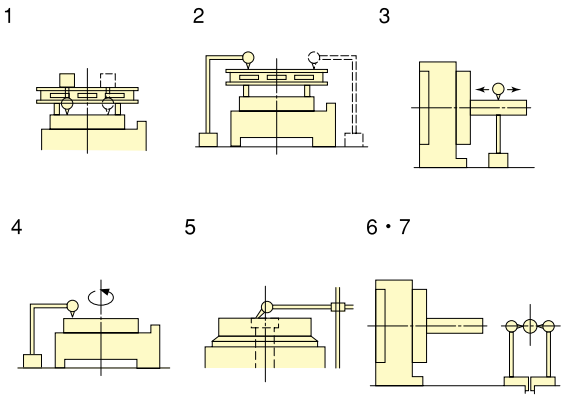
■MR・MX・GT series (Unit:mm)

No.	Inspection Item	Allowance
1	Straightness of table top face	0.020 at full length
2	Parallelism of upper face of table and mounting face of horizontal unit	0.020 at 150
3	Parallelism of rotary centre of table and mounting face of vertical unit	0.020 at 150
4	Run out of upper face during table rotation	0.020
5	Deflection of spindle centre hole	0.010
6	Parallelism of rotation centre of table and base guide block centre	0.020 at 150
7	Offset (deviation) of rotation centre of table and base guide block centre	0.030



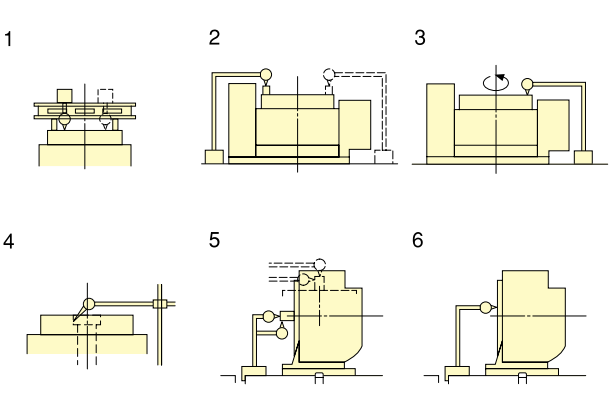
■T・LR series (Unit:mm)

No.	Inspection Item	Allowance
1	Straightness of table top face	0.010 at 300
2	Parallelism of upper face of table and mounting face of horizontal unit	0.020 at 300
3	Parallelism of rotary centre of table and mounting face of vertical unit	0.020 at 300
4	Run out of upper face during table rotation	0.010
5	Deflection of spindle centre hole	0.010
6	Parallelism of rotation centre of table and base guide block centre	0.020 at 300
7	Offset (deviation) of rotation centre of table and base guide block centre	0.020



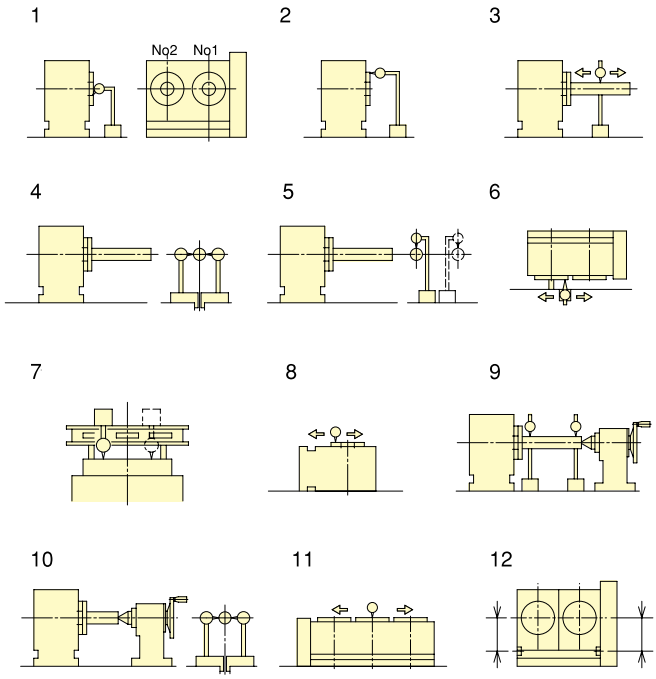
■TT series (Unit:mm)

No.	Inspection Item	Allowance
1	Straightness of table top face	0.010 at full length
2	Parallelism in tilt axis direction of upper face of table and lower face of base	0.020 at full length
3	Run out of upper face during table rotation	0.015
4	Deflection of spindle centre hole	0.010
5	Parallelism of tilt axis centre line and lower face of base	0.020 at full length
6	Parallelism between table top face and guide block	0.020 at full length



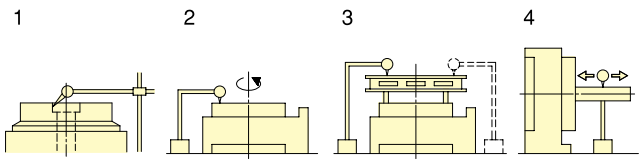
■Multiple spindle TM series (Unit:mm)

No.	Inspection Item	Allowance
1	Deflection of spindle centre hole	0.010
2	Run out of upper face during table rotation	0.010
3	Parallelism of table top face and base bottom face	0.020 at 150
4	Parallelism between spindle centre line and guide block centre line	0.020 at 150
5	Mutual difference of centre height	0.020
6	Mutual difference of average height of incoming and outgoing table	0.030
7	Straightness of table top face	0.010
8	Parallelism of table top face and base bottom face	0.010
9	Difference of height sizes for spindle center line and spindle centre line	0.030
10	Parallelism between spindle·tailstock centre line and guide block centre line	0.020 at 150
11	Mutual difference of average height from base bottom face to table top face	0.020
12	Mutual difference of centre hole position for base bottom face guide block	0.020



■RSM100 (Unit:mm)

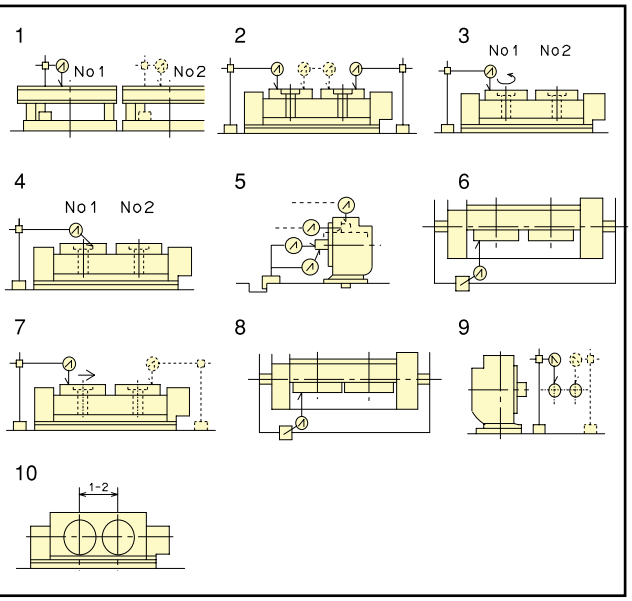
No.	Inspection Item	Allowance
1	Deflection of spindle centre hole	0.010
2	Run out of upper face during table rotation	0.020
3	Parallelism of table top face and base bottom face	0.020 at 150
4	Parallelism of spindle centre line and vertical mounting face	0.020 at 150



Accuracy specification

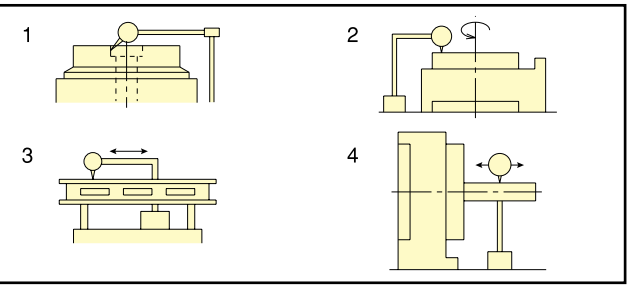
■TW2180 (Unit:mm)

No.	Inspection Item	Allowance
1	Straightness of table top face	0.010 at full length
2	Parallelism in tilt axis direction of upper face of table and lower face of base	0.020 at full length
3	Run out of upper face during table rotation	0.015
4	Deflection of spindle centre hole	0.010
5	Parallelism of tilt axis centre line and lower face of base	0.020 at full length
6	Parallelism of rotation centre of table and base guide block centre	0.020 at full length
7	Mutual difference of average height from base bottom to table top face	0.02
8	Mutual difference of average height of incoming and outgoing table	0.02
9	Mutual difference of centre height	0.02
10	Spindle centre distance	0.020 at 250



■DM100 (Unit:mm)

No.	Inspection Item	Allowance
1	Deflection of spindle centre hole	0.010 at full length
2	Run out of upper face during table rotation	0.005
3	Parallelism between table top face and base bottom face	0.01 at 150
4	Parallelism of spindle centre line and vertical mounting face	0.01 at 150



Glossary

Explanation of terms used to describe Kitagawa products.

Vertical • horizontal

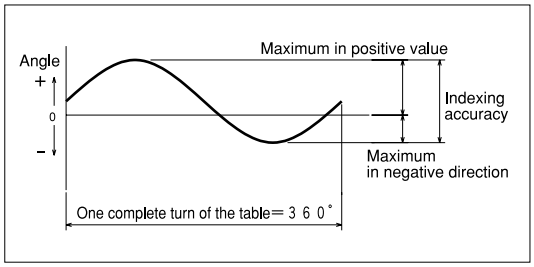
A vertical NC table is installed with the table surface perpendicular to the table surface of the machine tool, where as a horizontal one is installed flat with the NC table surface parallel to the machine tool table.

Right handed • Left handed

Facing to the table surface of the NC table installed upright, if the motor case is seen on the right hand side, it is "right-handed;" and if on the left hand side, it is "left-handed."

Indexing accuracy

The angle of difference between the 0 position after one complete 360° turn of the table. Indexing accuracy is a sum of the max and min values.



Repeatability

The maximum difference between several measurements after indexing in clockwise direction from the datum point 0° .

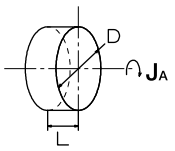
Clamp torque

Breaking force of clamping mechanism when rotational torque is applied externally to the table. As the condition, the catalog value is used for the supply pressure and does not include self-locking by the worm gear.

Allowable load

It is the maximum mass allowed on the table surface where the work is assumed to be a cylindrical castiron body of a diameter equal to the table surface.

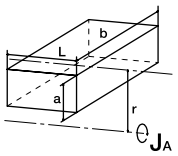
Formulas to determine moment of inertia



D :Major diameter of the roundbar [m]
L : Length of the roundbar [m]
ρ :Density [kg/m³]
M:Mass of the roundbar [kg]
JA :Moment of inertia [kgm²]

$$M = \frac{\pi D^2}{4} \times L\rho$$

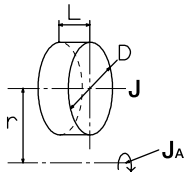
$$J_A = \frac{MD^2}{8}$$



a : Side length [m]
b : Side length [m]
L : Side length [m]
ρ : Density [kg/m³]
r : Turning radius [m]
JA : Moment of inertia [kgm²]

$$M = abL\rho$$

$$J_A = \frac{1}{12} M\left(a^2 + b^2 + 12r^2\right)$$

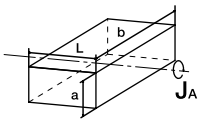


D :Major diameter of the roundbar [m]
L : Length of the roundbar [m]
r : Turning radius [m]
ρ: Density [kg/m³]
M:Mass of the roundbar
JA :Moment of inertia of the roundbar at the centre A [kgm²]
J : Moment of inertia [kgm²]

$$M = \frac{\pi D^2}{4} \times L\rho$$

$$J = \frac{MD^2}{8}$$

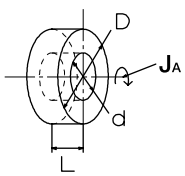
$$J_A = J + M \cdot r^2$$



a : Side length [m]
b : Side length [m]
L : Side length [m]
ρ : Density [kg/m³]
JA : Moment of inertia [kgm²]

$$M = abL\rho$$

$$J_A = \frac{1}{12} M\left(a^2 + b^2\right)$$



D :Outer diameter of the cylinder [m]
d : Bore diameter of the cylinder [m]
L : Length of the roundbar [m]
ρ: Density [kg/m³]
M:Mass of the cylinder [kg]
JA :Moment of inertia [kgm²]

$$M = \left(\frac{\pi D^2}{4} \times L\rho\right) - \left(\frac{\pi d^2}{4} \times L\rho\right)$$

$$J_A = \frac{1}{8} M\left(D^2 + d^2\right)$$

Densities of various materials Dynamic velocity (ρ)

Iron	$7.85 \times 10^3 kg/m^3$
Cast iron	$7.35 \times 10^3 kg/m^3$
Aluminum	$2.7 \times 10^3 kg/m^3$
Copper	$8.94 \times 10^3 kg/m^3$
Brass	$8.5 \times 10^3 kg/m^3$

Glossary

Allowable load (axial load, circumferential load, moment load)

Load allowable onto the table surface; categorized by the following:
(Axial load): load exerted perpendicularly onto the table surface.
(Circumferential load): load exerted onto the outer edge of the table surface in the parallel direction; agrees with the clamping torque.
(Moment load): Load exerted onto the table surface in parallel direction.

Allowable cutting torque

Load allowed during lead cutting with the NC table turning; it is the load-resistant torque of the worm wheel when the table is rotating at a speed of 1 min^{-1}.

Work inertia

Load exerted in the circumferential direction; degrees with the clamping torque.

Allowable work inertia

The maximum work inertia allowed on the NC table.

Triple disk brake system

Pneumatic mechanism used to generate high clamping torque equivalent to that of hydraulic clamping. Three disk plates cause frictions on four surfaces.

Air hydro booster

Amplifies pneumatic pressure to produce equivalent hydraulic pressure when built in a NC table it generates a clamping torque equivalent to that by direct hydraulic clamping.

Air purge

Air injected into the motor case to prevent condensation, and thus to protect electric devices.

Relief valve

Discharges pressure build up inside the rotary table body as a result of deteriorated seals, thus avoiding damage to the break and motor.

Trunnion jig plate (cradle)

Plate assembly to connect NC table and tail spindle thus allowing greater variety of work pieces to be machined.

Cautions

Warranty and indemnity

Products are warranted for one year after delivery. Use only genuine Kitagawa parts, including consumables. Kitagawa Iron Works assumes no responsibilities for any defects or accidents caused by non genuine parts or operation of products outside the recommended operating conditions. The warranties become invalid when any part other than Kitagawa's genuine part was used.

When planning to export or to take the product out of Japan

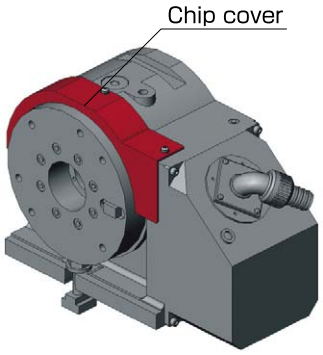
The products listed on this catalogue are subject to controls under "Export Trade Control Ordinance" and "Foreign Exchange Ordinance" by "Foreign Exchange and Foreign Trade Law." Consult in advance for any requirement of an approval by the Minister of Economy, Trade and Industry for export.

Using with grinding machine

Use with grinding machine can damage the face plate seals and is not warranted.

Chip cover optional

Chip covers are available to protect face plate seals in situations where chips directly hit the seal, or are easily trapped in a jig.



Air supply

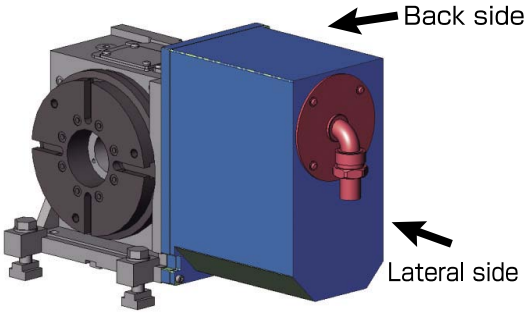
In some environments, condensation may occur inside the motor case. Our rotary tables are equipped with air purge to prevent electrical defects and corrosion caused by such condensation. The air supplied to the rotary table for air purge must be clean air of P85 or of the specification on the air circuit diagram. Where moisture may be contained in the supplied air, provide a dryer to remove the moisture. Any defect or accident caused by using air not complying with specifications will not be warranted.

NC control while using a table clamp

Refer to the control flow chart on page 88.

Direction of cable outlet

Standard cable outlet is provided on the back or the lateral side of the motor case. Consult for having cable outlet on any other position.



America Contact

● **KITAGAWA - NORTHTECH INC.**
Tel. +1 847-310-8787 Fax. +1 847-310-9484
301 E. Commerce Dr, Schaumburg, IL. 60173 USA
http://www.kitagawa.com

● **TECNARA TOOLING SYSTEMS, INC.**
Tel. +1 562-941-2000 Fax. +1 562-946-0506
12535 McCann Dr, Santa Fe Springs, California 90670 USA
http://www.tecnaratools.com

Europe Contact

KITAGAWA EUROPE LTD.
Tel. +44 1725-514000 Fax. +44 1725-514001
Unit 1 The Headlands, Downton, Salisbury, Wiltshire SP5 3JJ, United Kingdom
http://www.kitagawaeurope.com

● **KITAGAWA EUROPE GmbH**
Tel. +49 2102-123-78-00 Fax. +49 2102-123-78-69
Borsigstrasse 3, 40880, Ratingen Germany
http://www.kitagawaeurope.de

KITAGAWA EUROPE GmbH Poland Office
Tel. +48 607-39-8855 Fax. +48 32-749-5918
44-240 Zory, ul. Niepodleglosci 3 Poland
http://www.kitagawaeurope.de

KITAGAWA EUROPE GmbH Czech Office
Tel. +420 603-856-122 Fax. +420 549-273-246
Lysicka 3, 621 00 Brno, Czech Republic
http://www.kitagawaeurope.de

KITAGAWA EUROPE GmbH Romania Office
Tel. +40 727-770-329 Fax. +40 372-006-620
Heliului 15, Bucharest 1, 013991, Romania
http://www.kitagawaeurope.de

Asia Contact

KITAGAWA INDIA PVT LTD.
Tel. +91 20-6500-5981 Fax. +91 20-2615-0588
Lotus House East, Lane 'E' North Main Road, Koregaon Park, Pune, 411 001, Maharashtra, India

● **KITAGAWA (THAILAND) CO.,LTD. Bangkok Office**
Tel. +66 2-712-7479 Fax. +66 2-712-7481
9th FL, Home Place Office Building, 283/43 Sukhumvit 55Rd. (Thonglor 13),Klongton-Nua, Wattana, Bangkok 10110, Thailand

● **KITAGAWA IRON WORKS CO.,LTD. Singapore Branch**
Tel. +65 6838-4318 Fax. +65 6408-3935
#02-01 One Fullerton, 1 Fullerton Road, Singapore 049213

● **KITAGAWA IRON WORKS (SHANGHAI) CO.,LTD.**
Tel. +86 21-6295-5772 Fax. +86 21-6295-5792
Room308 3F Building B. Far East International Plaza,No.317 Xian Xia Road,Chang Ning, Shanghai,200051China

● **DEAMARK LIMITED**
Tel. +886 2-2393-1221 Fax. +886 2-2395-1231
No. 6, Lane 5, Lin Sen North Road, Taipei, Taiwan
http://www.deamark.com.tw

● **KITAGAWA KOREA AGENT CO.,LTD.**
Tel. +82 2-2026-2222 Fax. +82 2-2026-2113
803 Ho, B-Dong, Woolim Lion's Valley, 371-28 Gasan-Dong,Gumcheon-Gu, Seoul, Korea
http://www.kitagawa.co.kr

Oceania Contact

DIMAC TOOLING PTY.LTD.
Tel. +61 3-9561-6155 Fax. +61 3-9561-6705
61-65 Geddes Street, Mulgrave, Victoria, 3170 Australia
http://www.dimac.com.au

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KITAGAWA IRON WORKS CO., LTD.

77-1 Motomachi, Fuchu-shi, Hiroshima-pref. 726-8610, Japan Tel. +81 847-40-0526 Fax. +81 847-45-8911

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