

Strong AUTO**DI CHUN IRON WORK CO., LTD.**

NO. 321 Sec. 1, Hsi Nan Rd., Hsi Bah Tsun, Wu Jih Hsiang, Taichung Hsien, Taiwan.
Tel: +886-4-2335-4376 Fax: +886-4-2335-2874
Tax Code No: 52636067
Internet: <http://www.strong-dc.com.tw>
e-mail: sales@strong-dc.com.tw

北京思創德川進出口有限公司

Beijing Strong Di CHUN Import and Export Co., Ltd.
中國北京市朝陽區三里屯路甲52號128
郵政: 100022
Tel: 86-010-5971 1500 Fax: 86-010-67726433
www.strong-yc.com
e-mail: strong@strong-yc.com

**Talleres de Guernica CO., LTD.**

Golkibarra, 3,
48300 Guernika Spain.
Tel: 34-94-625-0500
Fax: 34-94-625-5351
tdag@tdag.net

**YUE SING MACHINERY CO., LTD.**

No.80/26 Moo 1 Rama 2 Rd., Tahkham,
Bangkhunthian, Bangkok, Thailand 10150
Tel: 0-2415-8964-5, 0-2416-5446
Fax: 66-2416-5464
Mobile: 01-917-4561, 01-925-1276

**HENRI AZARIA P.A.L (1984) LTD.**

B. Goren St., Petach-Tikva, Israel
Tel: 972-3-9233351/2
Fax: 972-3-9232824

**Best Chuck Inc**

13321 Alondra Blvd Unit C Santa Fe spring
CA90607 U.S.A
Tel: 562-229-1178
Fax: 562-229-1288
henrybestchuck@hotmail.com

**SCOTT MACHINERY LIMITED**

51 Gilberthorpe Rd, Wellington
P.O.Box 18213 Christchurch New Zealand
Tel: 64-3-349-2266
Fax: 64-3-349-4999

**HiMAQ S.R.**

Venezuela 3652 (1603) Villa Martelli Prov.
Buenos Aires Argentina.
Tel: 54-11-47093505
Fax: 54-11-47093472
e-mail: himaq@himaq.com.ar

**CMS MAKINA DAN.LTD.STI**

Istanbul Office:
Gincir yolu Hakimgolu Plaza No:105/9 Beyrampasa
Istanbul Turkey
Tel: 90 212 565 63 70 Fax: 90 212 565 6367
Konya Office:
Komsan is merkezi No:32 Karatay -Konya-Turkey
Tel:90 332 342 24 42 Fax:90 332 342 44 34

**PBS MACHINE TOOLS (PTY) LTD.**

P.O.Box 16422 Sunward Park Boksburg, South Africa
Tel: 27-11-8224927/8
Fax: 27-11-8224928

**LIU GMBH**

Beichenstr. 54, D-78626 Rothweil, Germany.
Tel: 49-0741-23226
Fax: 49-0741-23227
liugmbh@gmx.de

**MACK Präzisionswerkzeuge AG**

Eichendorffstr.20, D-89567 Sonthofen/Brenz
Tel: 07325-9609-0 Fax:07325-9609-20
www.mack-werkzeuge.de
sales@mack-werkzeuge.de

**UNIVERSAL ENGINEERING
WORKHOLDING LIMITED.**

New Street, Netherpton, Huddersfield West
Yorkshire, England HD4 7EZ.
Tel: 44-1484-663018
Fax: 44-1484-663758
sales@unew.co.uk

**Skandinaviska Chuckfabriken AB**

Box 121 Kyrkogatan 27, S-282 22 Tyringe Sweden
Tel: 46 461 50670 Fax: 46 461 50811
sca@chuckfabriken.se

**SELLTIS INDUSTRIAL LTDA**

Mario De Barro Floresta, Caxias do Sul RS CEP
95015-500 Brazil
Tel: 55 54 3225 3900 Fax: 55 54 3225 3900
www.selltis.com.br
e-mail: selltis@selltis.com.br



A STRONGHOLD BY PRECISION AND POWER.

Strong AUTO

Contents

13 | SC SERIES

3-JAW SCROLL CHUCK
PLAIN BACK, SOLID JAWS.



14 | SIC SERIES

4-JAW SCROLL CHUCK
PLAIN BACK, SOLID JAWS.



15 | SK SERIES

3-JAW STRONG SCROLL
CHUCK PLAIN BACK,
2-PIECE JAWS.



16 | SIK SERIES

4-JAW STRONG SCROLL
CHUCK PLAIN BACK,
2-PIECE JAWS.



17 | KD SERIES

3-JAW STRONG SCROLL
CHUCKS D1 CAMLOCK DIRECT
MOUNTING, 2-PIECE JAWS



18 | KA SERIES

3-JAW STRONG SCROLL
CHUCKS A1 DIRECT
MOUNTING, 2-PIECE JAWS



19 | SE SERIES

6-JAW SCROLL CHUCK
PLAIN BACK



20 | SKC SERIES

SOFT JAWS FOR STRONG
SCROLL CHUCKS



21 | N-200A SERIES

3-JAW WEDGE TYPE EXTRA
LARGE THROUGH-HOLE
POWER CHUCK (WITH ADAPTOR)



23 | N-200 SERIES

3-JAW WEDGE TYPE
THROUGH-HOLE POWER CHUCK
(WITHOUT ADAPTOR)



24 | NT-200 SERIES

2-JAW WEDGE TYPE
THROUGH-HOLE POWER CHUCK
(WITHOUT ADAPTOR)



25 | NIT-200 SERIES

4-JAW WEDGE TYPE THROUGH
HOLE POWER CHUCK
(WITHOUT ADAPTOR)



26 | NHT SERIES

2 JAWS AND 3 JAWS
THROUGH HOLE POWER CHUCKS
(WITH ADAPTOR)



27 | NB-200A SERIES

3-JAW WEDGE TYPE EXTRA
LARGE THROUGH-HOLE
POWER CHUCK (WITH ADAPTOR)



28 | V SERIES

3-JAW WEDGE TYPE NON
THROUGH HOLE POWER CHUCK
(WITHOUT ADAPTOR)



29 | VA SERIES

3-JAW WEDGE TYPE NON
THROUGH HOLE POWER CHUCK
(WITH ADAPTOR)



31 | VT&VIT SERIES

2-JAW AND 4-JAW WEDGE TYPE
NON THROUGH HOLE POWER
CHUCK (WITHOUT ADAPTOR)



32 | V(40"-79") SERIES

3-JAW WEDGE TYPE NON
THROUGH HOLE POWER CHUCK
(WITHOUT ADAPTOR)



33 | DOV/DON SERIES

VERTICAL AND VERTICAL /
HORIZONTAL/STATIONARY
POWER CHUCKS



34 | CR SERIES

COLLET CHUCKS FOR
CYLINDRICAL
CENTER MOUNT



35 | CRA SERIES

COLLET CHUCKS FOR
SHORT TAPER MOUNT



36 | HJ SERIES

HARD JAWS FOR HYDRAULIC
POWER CHUCKS



37 | HC SERIES

SOFT JAWS FOR HYDRAULIC
POWER CHUCKS



38 | T-NUTS SERIES

SUITABLE FOR POWER CHUCK



39 | ADAPTERS SERIES

MOUNTING ADAPTERS ON SHORT
TAPER SPINDLE NOSES DIN 55026



40 | M SERIES

SUPER HIGH SPEED THROUGH
HOLE/ROTARY HYDRAULIC
CYLINDER



41 | CM.B SERIES

HYDRAULIC CYLINDERS
COOLANT COLLECTORS



42 | MK SERIES

HIGH SPEED AND SHORT THROUGH
HOLE ROTARY HYDRAULIC CYLINDER



43 | ML-CM.B SERIES

EXTRA LARGE THROUGH HOLE
ROTARY HYDRAULIC CYLINDER



44 | MS SERIES

NON THROUGH HOLE ROTARY
HYDRAULIC CYLINDER (WITH VALVES)



45 | MF-C/MS-C SERIES

NON THROUGH HOLE ROTARY
HYDRAULIC CYLINDER
(WITH VALVES AND SWITCHES)



46 | MS250C/MS300C SERIES

NON THROUGH HOLE ROTARY
HYDRAULIC CYLINDER
(WITH VALVES AND SWITCHES)



47 | MH SERIES

NON THROUGH HOLE ROTARY
HYDRAULIC CYLINDER



48 | HB4 SERIES

BORING MILL JAWS



49 | F52 SERIES

HIGH SPEED AND LIGHT WEIGHT
TYPE STRONG FINGER CHUCK
FOR ALUMINUM WHEELS



50 | F61 SERIES

HIGH SPEED AND LIGHT WEIGHT
TYPE STRONG FINGER CHUCK
FOR ALUMINUM WHEELS



51 | F66 SERIES

HIGH SPEED AND LIGHT WEIGHT
TYPE STRONG FINGER CHUCK
FOR ALUMINUM WHEELS



52 | BL SERIES

3-JAW BALL SWING LOCK
CHUCK



53 | DR SERIES

3-JAW DRAW DOWN POWER
CHUCK



54 | P165 SERIES

FLOATING PLATE CENTER
CHUCK



55 | HN SERIES

3-JAW EXTRA HIGH SPEED
THROUGH-HOLE POWER
CHUCK (WITH ADAPTOR)





President & General
Manager

Chiu-Fa Hsueh

A Stronghold by precision and power

Di Chun Iron Work Co. Ltd. was established in Taichung city, Taiwan since 1974. In despite to chuck market in Taiwan was controlled by Japan through the early 1970's, the Di chun aimed to offer local machine manufacturers an another best choice and to replace Japanese chuck in the local market gradually and to offer a reasonable price. Today, the Di Chun Iron Work Company has achieved its initial aim, gaining more the 50% of the Taiwan market. With the help of ourself, we developed "STRONG" series range of high quality manual chucks, hydraulic chucks, and rotary hydraulic cylinders, it has gained increased popularity internationally to become a leading manufacturer of chucking equipment world wide.

Di Chun believes the key to success is to stimulate employees to be self motivated. In the words of our President & general manager CHIU-FA HSUEH "We value each employee as an individual, with every employee in his or her right place. The human resource is the company's biggest asset. Through highly skilled and self motivated employees, Di Chun will achieve the best products and increased popularity."





AUTO Strong

AUTO
Strong

Di Chun Iron Works Co., Ltd. Moving On

- 1974** Established in Taichung city, major in manufacturing of 3-jaw scroll chucks.
- 1976** Products honoured by local customers and mass production achieved.
- 1977** Successfully develop a range of interchangeable chuck jaws for hydraulic chucks by R&D department.
- 1978** Automation of parts production begins, with the introduction of CNC lathes and Machining Centres.
- 1980** Cooperate with ONO Machine & Tool Co. Ltd., as a joint venture, to sell our product to the Japanese market.
- 1982** Special purpose precision drilling machine developed and introduced into the production line.
- 1984** Computerised manufacturing management system introduced.
- 1987** Research and component standardization program and go into development of jaws for CNC lathe chucks.
- 1988** Hydraulic 3-jaw chucks and super high speed rotary hydraulic cylinders for CNC machines, developed in co-operation with the Mechanical School of Industrial Technology Institute.
- 1991** MCS certificate achieved and standards mark applied.
- 1992** Increased company's capital to NT\$ 50 million, and targeted a world wide market for machine tool applications.
- 1993** Beijing and Shenyang offices opened in mainland China, quality control under taken throughly and 100% Meehanite chucks adopted.
- 1995** CE mark applied to all of our product. Products honoured by Air/Oil Hydraulic association.
- 1996** ISO 9002 certification approved.
- 1997** Successfully developed the following items in 1997: M2511 high-speed XL-bore rotary hydraulic cylinder (15"). MS rotary hydraulic cylinder with built-in safety device, MSC rotary hydraulic cylinder with built-in safety & detective device, CT42 precision collet chuck.
- 1998** Successfully developed in 1998: V218 3-jaw wedge type non through hole power chuck.
- 1999** Successfully developed in 1999: V224 3-jaw wedge type non through hole power chuck.
- 2000** Successfully developed in 2000: High speed and light weight type strong finger chuck for aluminum wheels.
- 2001** Successfully developed in 2001: MM0933, MM1033A special speed through hole rotary hydraulic cylinder.
- 2002** Successfully developed in 2002: HN06, HG-1336. ISO 9001 certification approved.
- 2003** Successfully developed in 2003: researched and developed H84 Boring Mill Jaws, P165 Floating Center, N204 and NB series Chucks with Extra Large Through-Hole.
- 2004** Successfully developed In 2004: enlarged the factory complex, and researched and developed DR series Draw Down Power Chuck and BL series Ball Swing Lock Chuck.
- 2005** Successfully developed In 2005 17"-21"(F61) Finger chuck and 19"-24" Finger chuck
- 2006** successfully developed in 2006 MK-1452 cylinder and V232 (800mm) close center power chuck
- 2007** successfully developed in 2007 V240(1000mm) power chuck and MS250C power cylinder.
- 2008** Successfully developed In 2008 V250 (1250mm) power chuck and VE263 (1600mm) Vertical Lathe chuck.
- 2009** Successfully developed In 2009: ML-2816 extra large through bore rotary hydraulic cylinder.
- 2010** Successfully developed In 2010: ML-3320 extra large through bore rotary hydraulic cylinder.

The above models have been mass produced and application for their multiple patent rights and copyrights have been filed. Our strong R&D activities are highly praised in Taiwan.



Strong AUTO

Pioneers Of Innovation And Research

At Di Giun, we have an excellent team of engineers to create new ideas and concepts into high quality products for the market. To improve its function, accuracy, durability of the product and environmental protection are our long term work. All new products are subject to thorough performance testing and only after result analysis are confirmed, the product is ready for adoption into the company's product range.

The P-D-C-A circle method applied in production, assures quality products are produced and can complete with the best competition.

The new product designs have many advantageous features but not found in many of our competitors products. For example, our through bore, 3-jaw, wedge type chuck is more compact and light weight, when fitted with our Hi-speed rotary cylinder, the package offers high rotational accuracy, thus reducing vibration at the work piece, its reduced inertia and running torque make less demand on machine power.

The 'M' model Super High-Speed rotary cylinder benefits from its aluminium construction and innovative cooling feature, safety features to prevent sudden change in working pressure at the cylinder provide for safer operation.

During the design and development process, the latest CAD and FEA software is used to simulate heat and stress in a dynamic model. Actual testing of different materials, resulted in the use of Alumini cast iron.

The CAE techniques employed, contribute towards a higher quality finished product in shorter time, assist in efficient communication between R&D and other departments.

R&D



AUTO CAD



AUTO CAD

ASSEMBLY LINE



CAD STUDIO



MACHINING SCENE



CUTTING

MACHINING CENTER



GRINDING



SPOTLIGHT OF PRODUCT ASSEMBLY

Strong AUTO

Quality is our responsibility

Customer satisfaction is our prior responsibility. Di Chun proud with its products quality and effort to producing new and more advanced products. We obtained an MCS machinery components' certificate in 1993. The following year won the Ging Ting Award for outstanding "Through Bore Hydraulic Cylinders". In September 1995, we applied the CE mark and ISO 9002 certification, has been applied for.

High tech. equipment such as TESA two dimensional height gauge and an IMPACT three dimensional co-ordinate measuring machine are used for parts and assembled unit inspection. A long term effort and more facilities have been used to provide a highly competitive market with the best products. All data relating to the product quality control, including purchased materials, parts, and service reports are visit and analysed, to ensure the best quality. Customer consult and order process are on going as our regular service schedule.

Di Chun as a leading manufacturer of packing equipment for machine tools world wide.



QUALITY GUARANTEED



DYNAMIC BALANCE TESTING



PULL/PUSH FORCE TESTING



JAWS CLEANING



CENTRIFUGAL FORCE TESTING



PRODUCTS LIFE SPAN TESTING



SPOTLIGHT OF PRODUCT ASSEMBLY

CMM THREE DIMENSION TESTING



Q.C. MEETING



TWO DIMENSION TESTING





Manufacturing Management is The Key Way To Approach Customer Satisfaction

Di chun take much cares on consistent quality, efficient production and cost control. Manufacturing management begins with the specification, controlled processing and prior inspection of the raw material, suitable for our products.

The systematic manufacture and inspection of each part of component to find out errors at the right time, these can be corrected by our reclaim department and go through further inspection for be qualified and use on assembly. It save assembly time minimize errors, in production due to missing parts and ensure the quality of the finished product will consistently to meet the standard requirements. All inspection and test reports are kept permanently at the company for future reference.





Reasonable Price And High Quality Permit To Success

Di Chun believe, high quality products and price advantage are the key to success in a keen competitive market. Di Chun is leading the lathe chuck manufacturing industry in Taiwan. The advanced "STRONG" product series range are widely welcomed.

The "STRONG" series interchangeable jaw chucks.

The "STRONG" series, Meehanite, 3 jaw scroll chucks.

The "STRONG" series, hydraulic, through bore, 3 jaw wedge chucks.

The "STRONG" series, hydraulic, through bore, high speed and super high speed rotary cylinders.

With 60% of the Taiwan market and world-wide exports to USA, UK, Germany, China, Thailand, Japan..... and more, Di Chun are well established to offer the best possible products and service to its existing and new customers.



SC

SERIES

SPECIFICATIONS:

**3-JAW SCROLL CHUCK PLAIN BACK,
SOLID JAWS.**

1. Interchangeable utilization of internal and external hard jaws.
2. SC types feature economical and durable, suitable for mass production.
3. Gripping accuracy of 0.03mm (0.012inch) T.I.R..
4. The body is made of MEEHANITE. It is suitably used for high speed revolution and 3 times more durable than regular chucks.



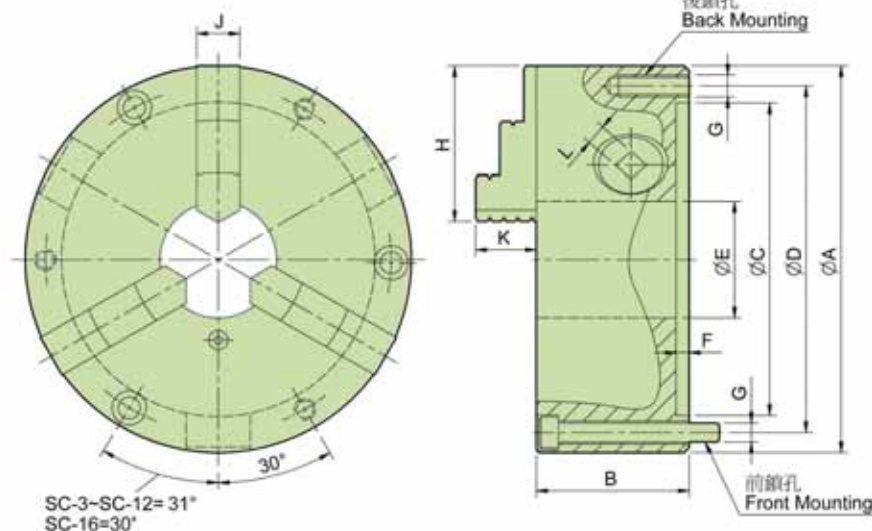
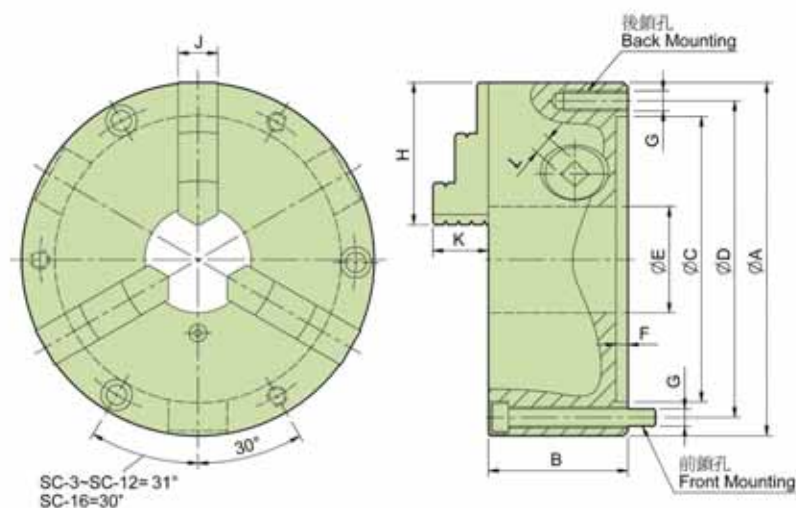
SIC

SERIES

SPECIFICATIONS:

**4-JAW SCROLL CHUCK PLAIN BACK,
SOLID JAWS.**

1. Gripping of square or octagonal workpieces could fit into central line automatically.
2. SIC have high stability in gripping thin tube work piece.
3. The specification is the same as SC type.
4. The body is made of MEEHANITE. It is suitably used for high speed revolution and 3 times more durable than regular chucks.



SPECIFICATIONS:

UNIT:mm

Dim Model	A	B	C	D	E	F	G		H	J	K	L	Allowable Handle Torque (kgf·m)	Gripping Force (kgf)	Moment of Inertia I (kg·m ²)	Weight (kg)	Max. Speed (r.p.m.)	Gripping Range	
							Back	Front										O.D. range	I.D. range
SC-3	86	46	80	73	18	4	3-M8	3-M6x50	36	11	15	7	3.0	900	—	1.7	3500	φ2~φ70	φ24~φ84
SC-4	112	60	90	95	24	4.8	3-M8	3-M8x70	42	14	18.6	8	4.5	1200	—	3.7	2500	φ3~φ95	φ25~φ84
SC-5	132	60	100	115	32	4.8	3-M8	3-M8x70	50	16	20.3	8	6.5	1500	0.01	5.2	2500	φ3~φ110	φ33~φ100
SC-6	167	87	130	147	45	5.5	3-M10	3-M10x70	63	19	23.7	10	9.0	3300	0.03	9.3	4000	φ4~φ160	φ48~φ150
SC-7	192	76.5	155	172	58	5.5	3-M10	3-M10x80	77	21.5	29.4	11	11.0	3600	0.06	14.2	3500	φ4~φ180	φ56~φ170
SC-8	200	76.5	180	176	58	5.5	3-M10	3-M10x80	77	21.5	29.4	11	11.0	3600	0.07	16	3200	φ4~φ190	φ62~φ180
SC-9	232	84	190	210	70	6	3-M12	3-M12x90	87	24	35.6	12	15.0	3900	0.15	22.7	2900	φ5~φ220	φ62~φ210
SC-10	273	87	230	250	89	8	3-M12	3-M12x90	98	28	39.5	12	19.5	4800	0.25	31.8	2500	φ6~φ260	φ70~φ250
SC-12	310	96	280	285	105	7	3-M12	3-M12x110	110	30	45.6	14	21.0	5100	0.58	44.8	2200	φ10~φ300	φ86~φ290
SC-16	405	122	345	375	160	8.7	—	6-M14x130	146	42	56.3	15	23.0	4500	1.75	102	1500	φ30~φ380	φ110~φ360

SPECIFICATIONS:

UNIT:mm

Dim Model	A	B	C	D	E	F	G		H	J	K	L	Allowable Handle Torque (kgf·m)	Gripping Force (kgf)	Moment of Inertia I (kg·m ²)	Weight (kg)	Max. Speed (r.p.m.)	Gripping Range	
							Back	Front										O.D. range	I.D. range
SIC-7	192	76.5	155	172	58	5.5	3-M10	—	77	21.5	29.4	11	11.0	3600	0.06	14.8	3500	φ4~φ180	φ56~φ170
SIC-9	232	84	190	210	70	6	3-M12	—	87	24	35.6	12	15.0	3900	0.16	23.2	2900	φ5~φ220	φ62~φ210
SIC-12	310	96	280	285	105	7	3-M12	—	110	30	45.6	14	21.0	5100	0.58	47	2200	φ10~φ300	φ86~φ290
SIC-16	405	122	345	375	160	8.7	—	6-M14x130	146	42	56.3	15	23.0	4500	1.72	107	1500	φ30~φ380	φ110~φ360



SK

SERIES

SPECIFICATIONS:

**3-JAW STRONG SCROLL CHUCK
PLAIN BACK, 2-PIECE JAWS.**

- 1.SK types chucks have wider utilization range; hard jaws suitable for heavy cutting; soft jaws suitable for light and precision cutting.
- 2.Hard jaws could be used as internal jaws and external jaws.
- 3.Gripping accuracy of 0.03mm (0.012 inch) T.I.R.
- 4.The body is made of MEEHANITE. It is suitably used for high speed revolution and 3 times more durable than regular chucks.



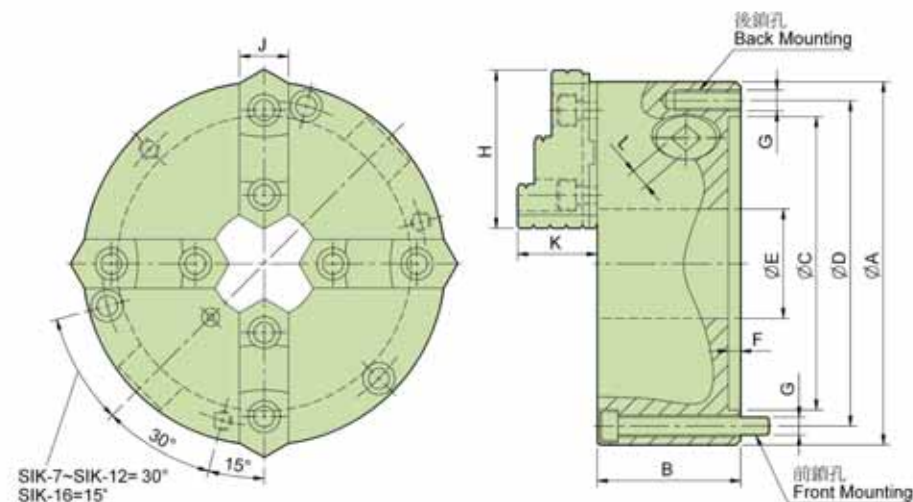
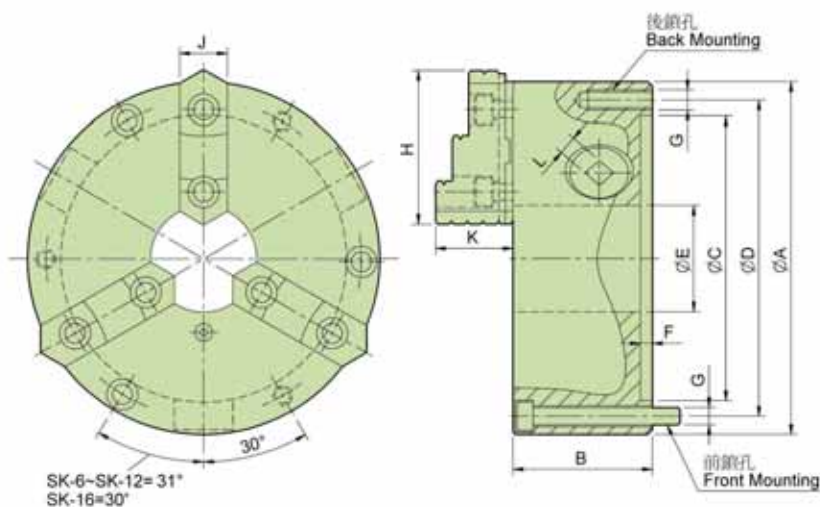
SIK

SERIES

SPECIFICATIONS:

**4-JAW STRONG SCROLL CHUCK
PLAIN BACK, 2-PIECE JAWS.**

- 1.Hard jaws are adopted for square for square or octagonal thin tube workpieces machining.
- 2.Soft jaws could grip rectangular workpiece after being unisotropic machined.
- 3.The specification is the same as SK type.
- 4.The body is made of MEEHANITE. It is suitably used for high speed revolution and 3 times more durable than regular chucks.



SPECIFICATIONS:

UNIT:mm

Dim Model	A	B	C	D	E	F	G		H	J	K	L	Allowable Handle Torque (kgf·m)	Gripping Force (kgf)	Moment of Inertia I (kg·m ²)	Weight (kg)	Max. Speed (r.p.m.)	Gripping Range	
							Back	Front										O.D. range	I.D. range
SK-6	167	67	130	147	45	5.5	3-M10	3-M10	72	26	40.2	10	9.0	3300	0.03	9	4000	φ4~φ160	φ55~φ150
SK-7	192	76.5	155	172	58	5.5	3-M10	3-M10	81.2	28	42	11	11.0	3600	0.06	13.8	3500	φ5~φ180	φ62~φ170
SK-8	200	76.5	160	176	58	5.5	3-M10	3-M10	82	28	42	11	11.0	3600	0.07	15.5	3200	φ5~φ190	φ68~φ180
SK-9	232	84	190	210	70	6	3-M12	3-M12	95.9	32	51.2	12	15.0	3900	0.16	22	2900	φ11~φ220	φ70~φ210
SK-10	273	87	230	250	88	8	3-M12	3-M12	100.5	35	56.7	12	19.5	4800	0.26	29.7	2500	φ12~φ260	φ80~φ250
SK-12	310	96	260	285	105	7	3-M12	3-M12	114.5	40	56.8	14	21.0	5100	0.58	43.5	2200	φ15~φ300	φ90~φ290
SK-16	405	122	345	375	160	8.7	—	4-M16	148.6	50	76.1	15	23.0	4500	1.72	98	1500	φ30~φ380	φ110~φ360

SPECIFICATIONS:

UNIT:mm

Dim Model	A	B	C	D	E	F	G		H	J	K	L	Allowable Handle Torque (kgf·m)	Gripping Force (kgf)	Moment of Inertia I (kg·m ²)	Weight (kg)	Max. Speed (r.p.m.)	Gripping Range	
							Back	Front										O.D. range	I.D. range
SIK-7	192	76.5	155	172	58	5.5	3-M10	—	82	28	42	11	11.0	3600	0.06	14.1	3500	φ5~φ180	φ62~φ170
SIK-9	232	84	190	210	70	6	3-M12	—	96	32	51.2	12	15.0	3900	0.16	22.2	2900	φ11~φ220	φ70~φ210
SIK-12	310	96	260	285	105	7	3-M12	—	114.5	40	56.8	14	21.0	5100	0.58	45	2200	φ15~φ300	φ90~φ290
SIK-16	405	122	345	375	160	8.7	—	4-M16	148.6	50	76.1	15	23.0	4500	1.72	108	1500	φ30~φ380	φ110~φ360