COLLET CHUCK

Inside dia. clamping

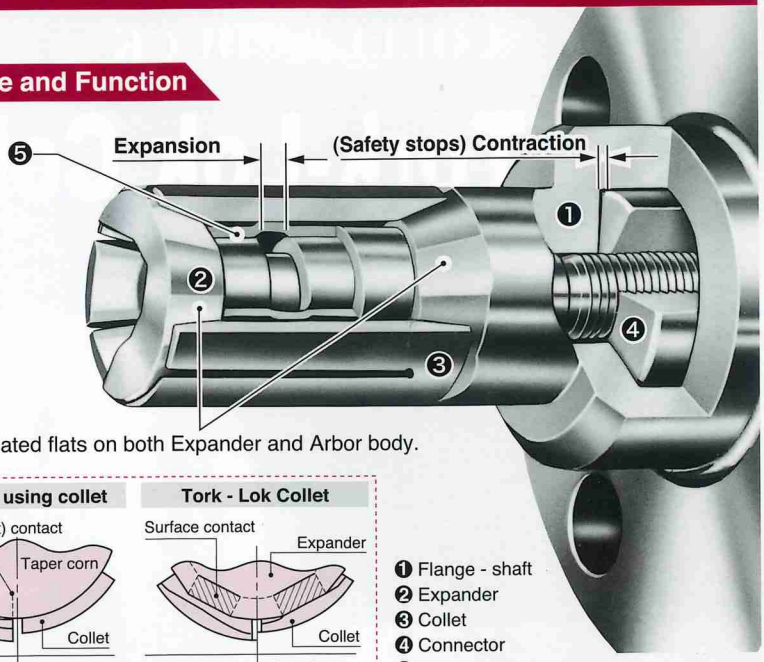
AC Tork-Lok Collets & Arbors

I.D. clamping has a disadvantage in terms of clamping torque, since machining for large-diameter work-pieces are processed by a small clamping diameter, and often high-precision processes are required, such as finishing. In Tork-Lok Collets, the contact faces of the chuck body and the collets are precisely finished into flat faces, which together work as a "Tork-Lok mechanism" allowing no slippage between the contact surfaces, even under large cutting torque. The part of the contact between COLLET and EXPANDER is strong in the abration because each flat surface is contacted. Also cutting dust hardly enters into the contact portion and it enables to maintain high accuracy for long term. The Tork-Lok Collet Arbor Chuck is adopted by a lot of customers, because of these excellent points such as "Pull-Back" function, high-accuracy and performance and plenty of stock. The standard series and short series are available, each of which includes Arbor models with rotating cylinders and Between Center types for spanner operation.

Notes for application of AC Tork-Lok

- The squareness and the parallelism are influenced by the accuracy of the reference end face of the work-piece, since the work-piece is pulled toward to the stop while it is clamped.
- It is necessary to set up the Collets on tapered portion of the Expander and the Arbor to be "flat surface contact." (Use a restrictor for short length work-pieces. See the lower right figure.)
- Fit the Expander tightly.
- When the draw bar thrust is not enough, it is effective to use a hydraulic tail stock.

Structure and Function



Precision mated flats on both Expander and Arbor body.

❶ Flange - shaft
❷ Expander
❸ Collet
❹ Connector
❺ Dust - seal

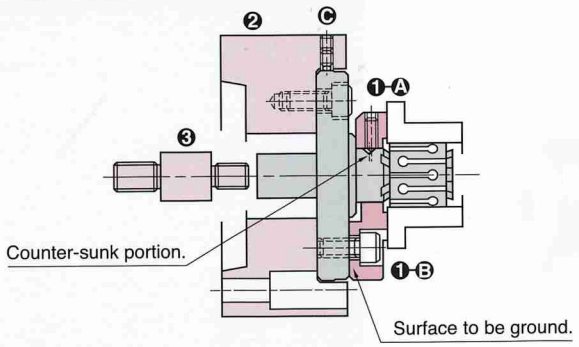
Advantages

1. "Tork-Lok" design
2. Great torque transmission
3. Geometrically sealed
4. Work-piece "Pull-Back" function
5. Great accuracy
6. Less Collet breakage
7. Self-releasing
8. Sufficient stock

Standard design of drawbar type chuck

● We are available to design special parts chucking layout such as stoppers on request basis.

Clamp with the whole portion of collet surface.



❶-Ⓐ Stopper
Please make the center of bolt hole be higher to adhere to the counter-sunk portion (3 points recommended) surface of the body.

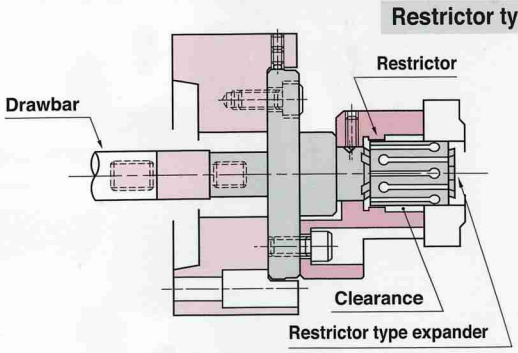
❶-Ⓑ Stopper
Attach to the standard bolt hole (inch bolt) after grinding flange surface of the chuck body.

❷ Adapter
Provide the bolt for adjusting concentricity as 4 equally, also employ such as gunmetal for the contact portion to the body to avoid scratching and use insert two bolts to protect unfasten the bolt for safety.

❸ Drawbar
Decide the diameter of draw bar stroke according to examining the amount of in and out of the drawbar stroke and the distance of the connector surface at the time of attaching the adapter and the body. Therefore, it is necessary to select the material which has the strength for pulling action.

When the work-piece clamping length is shorter than the collet length.

Restrictor type design



❶ Restrictor (for un-clamping)
The work-piece which clamping length is short needs restrictor. For restrictor of the collet this stopper's I.D. should be finished within +0.05~0.1 of the upper limit of workpiece I.D. tolerance. The position where should be restricted is at collet lower taper portion.

❷ Restrictor type expander (AC-＊＊67)
This restrictor expander allows making over-clamping stroke smaller than standard exander, and preventing it from exceeding the limit of the un-clamping range. Please indicate us when you need the restrictor expander. However, if in case the work-piece clamping length is close to the maximum of collet clamping range, please use standard expander. You can distinguish the standard type (AC-＊＊65) from the restrictor type by stamped of the center of the expander.

❸ Clearance
If the restrictor portion effects until stop position, there is a possibility to break the collet at the time of un-clamping. Restrictor expander should be used at lower collet taper portion. Please keep more than 1mm clearance in diameter from the maximum of the collet's clamping range.

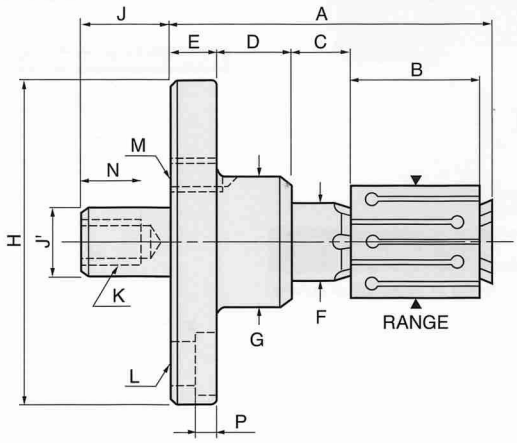
COLLET CHUCK

AC Drawbar models inch type Standard series

Standard series [2000 type]

This Standard series are applicable to wide clamping ranges from I.D. ϕ12.7 to ϕ113.4. The bending capacity is big range compared with Short series. As it is strong in the frequent non-work-piece clamping operation, we recommend this Standard series for restrictor needed short size work-piece (Expanding restriction of Collet). When using this model, basically need to prepare adapter plate, draw-bar connector, stopper (or restrictor stopper). We are available to prepare to design them and conduct technical evaluation if you provide us necessary information.

Dimension diagram



Dimensions

AC-2110 · AC-2210 · AC-2310 are only for light cutting. If possible, please avoid using with a Restrictor Stopper system.

Model No.	Clamping range	Collet necessary Q'ty	A	B	C	D	E	F	G	H
AC−2110	12.70 ~ 16.64	(10)	63.2	22.4	9.9	16.8	12.7	11.94~11.92	31.8	85.74~85.73
AC−2210	15.06 ~ 19.82	(12)	68.3	26.9	10.4	16.8	12.7	14.72~14.70	31.8	85.74~85.73
AC−2310	18.23 ~ 25.38	(18)	75.2	31.7	12.4	16.8	12.7	17.90~17.88	31.8	85.74~85.73
AC−2410	22.22 ~ 31.73	(12)	90.9	36.6	14.2	22.9	14.2	21.47~21.44	44.5	104.79~104.78
AC−2510	28.57 ~ 41.25	(16)	98.8	41.1	17.5	22.9	14.2	27.42~27.40	44.5	104.79~104.78
AC−2610	37.28 ~ 53.14	(20)	105.1	46.0	20.8	18.3	17.3	35.76~35.73	63.5	123.84~123.83
AC−2710	49.19 ~ 72.22	(29)	113.2	50.8	25.4	16.8	17.3	46.87~46.84	63.5	123.84~123.83
AC−2810	65.07 ~ 91.27	(33)	122.7	57.2	28.4	16.8	17.3	61.95~61.94	76.2	139.71~139.70
AC−2910	84.12~113.47	(37)	126.2	63.5	28.2	14.2	17.3	80.99~80.98	91.9	139.71~139.70

Model No.	J (Stroke) Max.	J (Stroke) Min.	J'	N	P	K	L (4 Equal dimension)	M (4 Equal dimension)
AC−2110	23.02	18.38	14.3	15.8	6.3	3/8-24	3/8 63.5 P.C.D.	5/16-24 60.3 P.C.D.
AC−2210	23.02	18.38	14.3	15.8	6.3	3/8-24	3/8 63.5 P.C.D.	5/16-24 60.3 P.C.D.
AC−2310	23.02	18.38	14.3	14.2	6.3	3/8-24	3/8 63.5 P.C.D.	5/16-24 60.3 P.C.D.
AC−2410	35.67	30.24	19.1	19.0	7.9	1/2-20	1/2 79.2 P.C.D.	3/8-24 73.0 P.C.D.
AC−2510	35.67	30.24	19.1	19.0	7.9	1/2-20	1/2 79.2 P.C.D.	3/8-24 73.0 P.C.D.
AC−2610	45.25	39.82	24.6	19.8	9.5	3/4-16	1/2 95.3 P.C.D.	3/8-24 92.1 P.C.D.
AC−2710	45.25	39.82	24.6	19.8	9.5	3/4-16	1/2 95.3 P.C.D.	3/8-24 92.1 P.C.D.
AC−2810	45.25	39.82	24.6	31.7	9.5	3/4-16	1/2 114.3 P.C.D.	3/8-24 92.1 P.C.D.
AC−2910	45.25	39.82	24.6	31.7	9.5	3/4-16	1/2 114.3 P.C.D.	3/8-24 92.1 P.C.D.

* Please inform us of your requesting Expander to be used. If there is no request, Standard Expander will be provided.

Component parts

Arbor model	Connector		Retaining-rings		Lock-pins		Flange-shaft		Dust-seal		Standard-Expander		*Restrictor-Expander	
AC−2110		AC−162−A		AC−8186		AC−8185		AC−159		AC−190		AC−165		AC−167
AC−2210		AC−162−A		AC−8186		AC−8185		AC−259		AC−291		AC−265		AC−267
AC−2310		AC−362−A		AC−8186		AC−8185		AC−359		AC−391		AC−365		AC−367
AC−2410	CAT.	AC−462−A	CAT.	AC−8486	CAT.	AC−8485	CAT.	AC−459	CAT.	AC−491	CAT.	AC−465	CAT.	AC−467
AC−2510		AC−562−A		AC−8486		AC−8485		AC−559		AC−591		AC−565		AC−567
AC−2610	No.	AC−662−A	No.	AC−8686	No.	AC−8685	No.	AC−659	No.	AC−691	No.	AC−665	No.	AC−667
AC−2710		AC−662−A		AC−8686		AC−8685		AC−759		AC−791		AC−765		AC−767
AC−2810		AC−862−A		AC−8686		AC−8685		AC−859		AC−890		AC−865		AC−867
AC−2910		AC−862−A		AC−8686		AC−8685		AC−959		AC−990		AC−965		AC−967

* Whenever the restricted stopper is used, the Restrictor Expander must be used.