

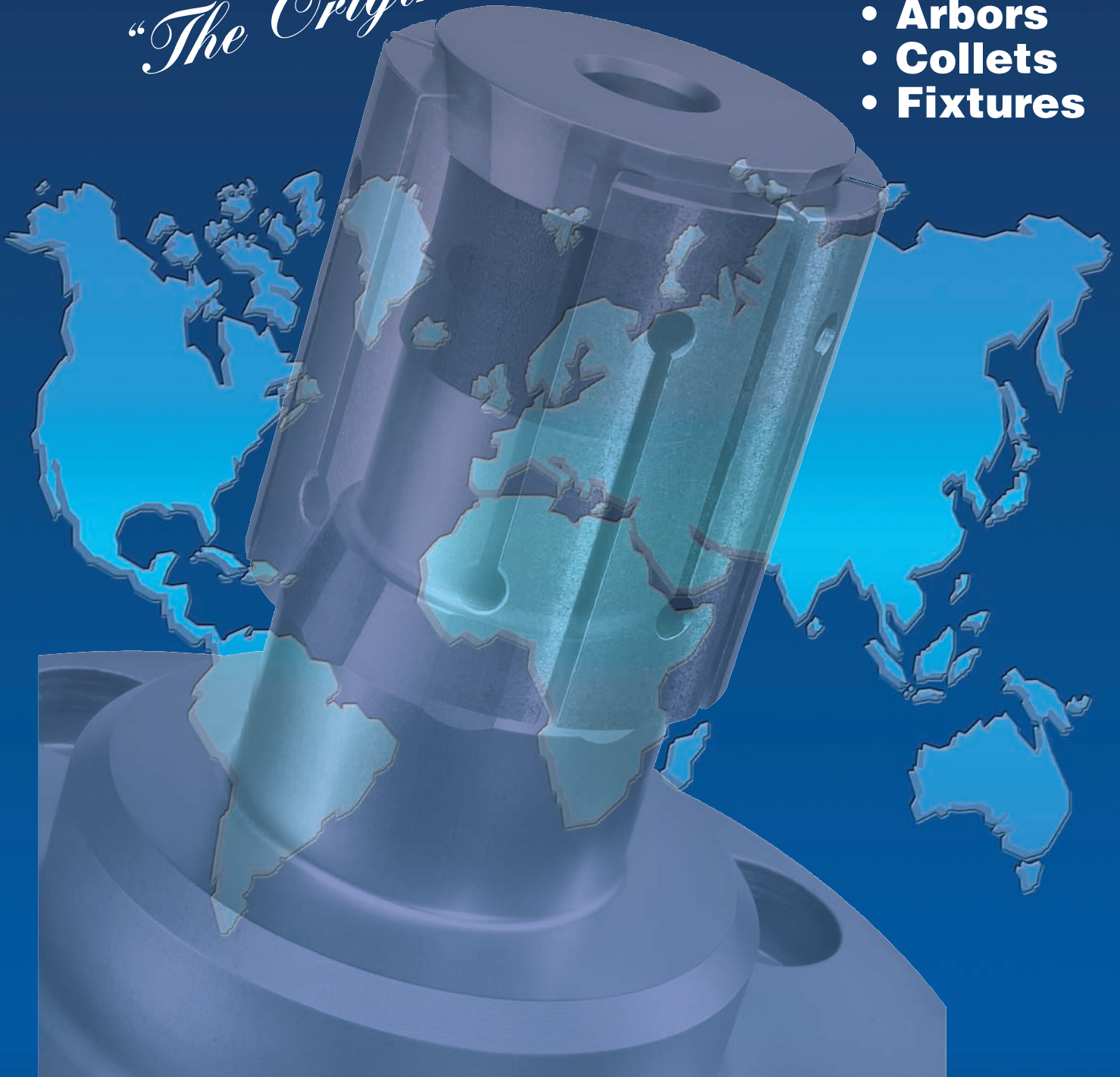
# N.A. Woodworth

An ITW Workholding Company

*"The Original"*

## **Tork-Lok**

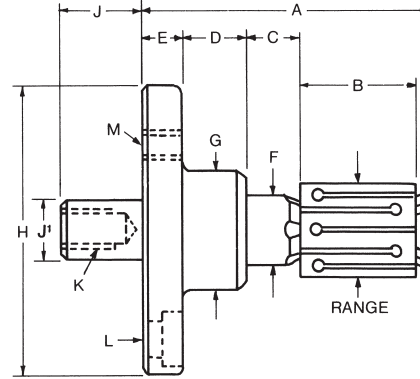
- **Arbors**
- **Collets**
- **Fixtures**



**WORKHOLDING SOLUTIONS WORLDWIDE**

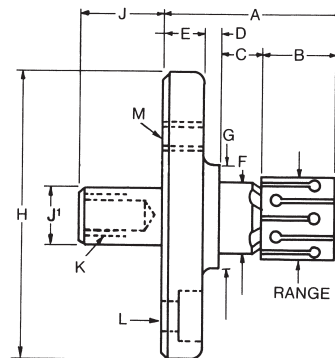
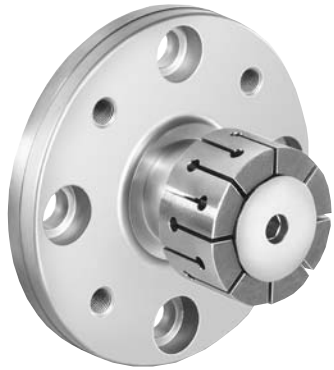
# N.A. Woodworth

## Drawbar Models



### Long Series

CATALOG NO.	RANGE	A	B	C	D	E	F	G	H	J¹	K	L	M
AC-2110	.500 – .655 10 Collets	2.49	.88	.39	.66	.50	.4702 .4692	1.25	3.3755 3.3750	.750 .562	3/8 – 24	For (4) 3/8 S.H.S. on 2.50 B.C.	For (4) 5/16 – 24 on 2.375 B.C.
AC-2210	.593 – .780 12 Collets	2.69	1.06	.41	.66	.50	.5796 .5786	1.25	3.3755 3.3750	.750 .562	3/8 – 24	For (4) 3/8 S.H.S. on 2.50 B.C.	
AC-2310	.718 – .999 18 Collets	2.96	1.25	.49	.66	.50	.7046 .7036	1.25	3.3755 3.3750	.750 .562	3/8 – 24	For (4) 3/8 S.H.S. on 2.50 B.C.	
AC-2410	.875 – 1.249 12 Collets	3.58	1.44	.56	.90	.56	.8452 .8442	1.75	4.1255 4.1250	1.220 .750	1/2 – 20	For (4) 1/2 S.H.S. on 3.12 B.C.	For (4) 3/8 – 24 on 2.875 B.C.
AC-2510	1.125 – 1.624 16 Collets	3.89	1.62	.69	.90	.56	1.0796 1.0786	1.75	4.1255 4.1250	1.220 .750	1/2 – 20	For (4) 1/2 S.H.S. on 3.12 B.C.	
AC-2610	1.468 – 2.092 20 Collets	4.14	1.81	.82	.72	.68	1.4077 1.4067	2.50	4.8755 4.8750	1.590 .968	3/4 – 16	For (4) 1/2 S.H.S. on 3.75 B.C.	For (4) 3/8 – 24 on 3.625 B.C.
AC-2710	1.937 – 2.843 29 Collets	4.46	2.00	1.00	.66	.68	1.8452 1.8442	2.50	4.8755 4.8750	1.590 .968	3/4 – 16	For (4) 1/2 S.H.S. on 3.75 B.C.	
AC-2810	2.563 – 3.593 33 Collets	4.83	2.25	1.12	.66	.68	2.4390 2.4385	3.00	5.5005 5.5000	1.590 .968	3/4 – 16	For (4) 1/2 S.H.S. on 4.50 B.C.	
AC-2910	3.312 – 4.467 37 Collets	4.97	2.50	1.11	.56	.68	3.1885 3.1880	3.62	5.5005 5.5000	1.590 .068	3/4 – 16	For (4) 1/2 S.H.S. on 4.50 B.C.	

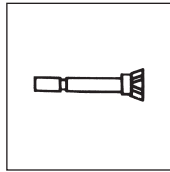


### Short Series

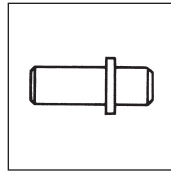
CATALOG NO.	RANGE	A	B	C	D	E	F	G	H	J¹	K	L	M
AC-8100	.500 – .655 15 Collets	1.81	.59	.42	.25	.50	.4702 .4692	.88	3.3755 3.3750	.781 .562	3/8 – 24	For (4) 3/8 S.H.S. on 2.50 B.C.	For (4) 5/16 – 24 on 2.375 B.C.
AC-8200	.593 – .797 20 Collets	1.97	.72	.45	.25	.50	.5796 .5786	1.00	3.3755 3.3750	.781 .562	3/8 – 24	For (4) 3/8 S.H.S. on 2.50 B.C.	
AC-8300	.718 – 1.000 28 Collets	2.15	.84	.51	.25	.50	.7046 .7036	1.12	3.3755 3.3750	.781 .562	3/8 – 24	For (4) 3/8 S.H.S. on 2.50 B.C.	
AC-8400	.875 – 1.299 20 Collets	2.35	.94	.59	.18	.56	.8452 .8442	1.38	4.1255 4.1250	1.250 .750	1/2 – 20	For (4) 1/2 S.H.S. on 3.12 B.C.	For (4) 3/8 – 24 on 2.875 B.C.
AC-8500	1.125 – 1.624 24 Collets	2.59	1.125	.65	.18	.56	1.0796 1.0786	1.56	4.1255 4.1250	1.250 .750	1/2 – 20	For (4) 1/2 S.H.S. on 3.12 B.C.	
AC-8600	1.468 – 2.104 30 Collets	2.93	1.22	.83	.12	.68	1.4077 1.4067	1.88	4.8755 4.8750	1.625 .968	3/4 – 16	For (4) 1/2 S.H.S. on 3.75 B.C.	For (4) 3/8 – 24 on 3.625 B.C.
AC-8700	1.937 – 2.821 42 Collets	2.98	1.31	.79	.12	.68	1.8452 1.8442	2.38	4.8755 4.8750	1.625 .968	3/4 – 16	For (4) 1/2 S.H.S. on 3.75 B.C.	

# N.A. Woodworth

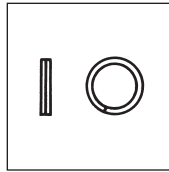
## Replacement Components



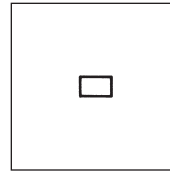
EXPANDER



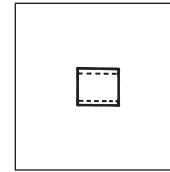
CONNECTOR



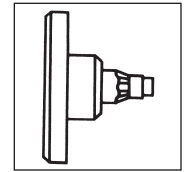
RETAINING RING



LOCK PIN



DIRT SEAL

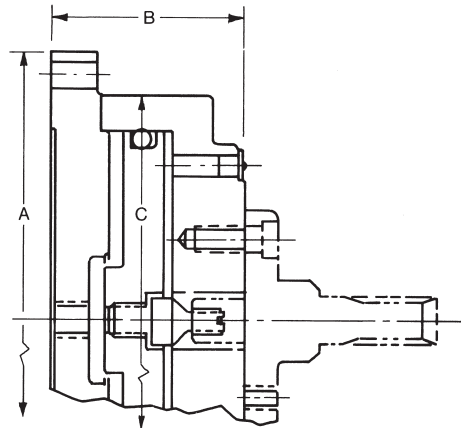
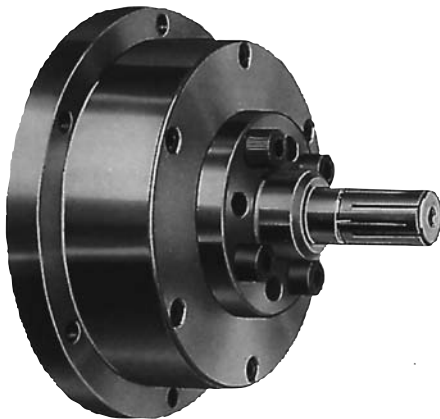


FLANGE SHAFT  
Sold Separately

**Kits Contain (1) Expander, (1) Connector, (3) each Retaining Ring, Lock Pin and Dirt Seal Items Not Sold Separately**

ASSEMBLY CATALOG NO.	REPLACEMENT KIT CATALOG NO. *see diagram	FLANGE SHAFT CATALOG NO.
AC-2110	AC-2110K	AC-159
AC-2210	AC-2210K	AC-259
AC-2310	AC-2310K	AC-359
AC-2410	AC-2410K	AC-459
AC-2510	AC-2510K	AC-559
AC-2610	AC-2610K	AC-659
AC-2710	AC-2710K	AC-759
AC-2810	AC-2810K	AC-859
AC-2910	AC-2910K	AC-959
AC-8100	AC-8100K	AC-8152
AC-8200	AC-8200K	AC-8252
AC-8300	AC-8300K	AC-8352
AC-8400	AC-8400K	AC-8452
AC-8500	AC-8500K	AC-8552
AC-8600	AC-8600K	AC-8652
AC-8700	AC-8700K	AC-8752

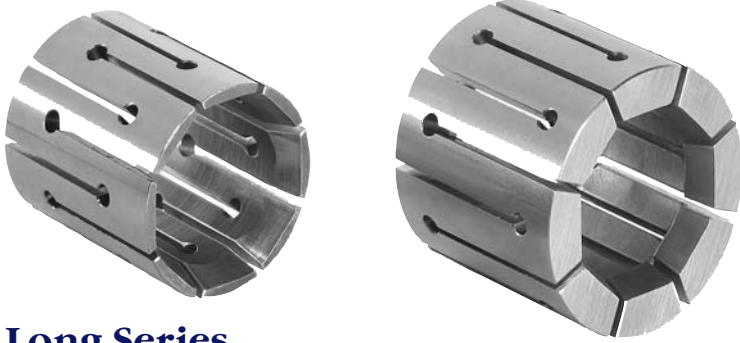
## Air-Operated Models



CYLINDER ASSY. ONLY CATALOG NO.	DIMENSIONS			CONNECTOR CATALOG NO.	FOR USE WITH
	A	B	C		
AC-3007	8.18	2.91	6.885	AC-135	AC 2110, 2210, 2310, 8100, 8300
			6.875	AC-136	AC 2410, 2510, 8400, 8500
				AC-137	AC 2110, 2210, 2310, 8100, 8200, 8300
AC-3010	11.18	3.03	9.885	AC-138	AC 2410, 2510, 8400, 8500
			9.875	AC-139	AC 2610, 2710, 8600, 8700
AC-3013	14.18	3.09	12.885	AC-138	AC 2410, 2510, 8400, 8500
			12.875	AC-139	AC 2610, 2710, 2810, 2910, 8600, 8700

# N.A. Woodworth

## Tork-Lok Collets



- Precision ground flats.
- Collets interchangeable on all arbors within specified range.
- Accuracy of arbor not affected by indexing of collet on shaft.
- High grade steels, precisely heat treated.

### Long Series

For use on AC 1100, 2110, 4110, 5110	
RANGE	COLLET NO.
.500-.515	AC 101
.516-.530	102
.531-.546	103
.547-.561	104
.562-.577	105
.578-.592	106
.593-.608	107
.609-.623	108
.624-.639	109
.640-.655	110

Length .88

For use on AC 1200, 2210, 4210, 5210	
RANGE	COLLET NO.
.593-.608	AC 201
.609-.624	202
.625-.639	203
.640-.655	204
.656-.670	205
.671-.686	206
.687-.702	207
.703-.717	208
.718-.733	209
.734-.749	210
.750-.764	211
.765-.780	212

Length 1.06

For use on AC 1300, 2310, 4310, 5310	
RANGE	COLLET NO.
.718-.733	AC 301
.734-.749	302
.750-.764	303
.765-.780	304
.781-.796	305
.797-.812	306
.813-.827	307
.828-.843	308
.844-.858	309
.859-.874	310
.875-.890	311
.891-.905	312
.906-.921	313
.922-.936	314
.937-.952	315
.953-.967	316
.968-.983	317
.984-.999	318

Length 1.25

For use on AC 1400, 2410, 4410, 5410	
RANGE	COLLET NO.
.875-.905	AC 401
.906-.936	402
.937-.967	403
.968-.999	404
1.000-1.030	405
1.031-1.061	406
1.062-1.092	407
1.093-1.124	408
1.125-1.155	409
1.156-1.186	410
1.187-1.217	411
1.218-1.249	412

Length 1.44

For use on AC 1500, 2510, 4510, 5510	
RANGE	COLLET NO.
1.125-1.155	AC 501
1.156-1.186	502
1.187-1.217	503
1.218-1.249	504
1.250-1.280	505
1.281-1.311	506
1.312-1.342	507
1.343-1.374	508
1.375-1.405	509
1.406-1.436	510
1.437-1.467	511
1.468-1.499	512
1.500-1.530	513
1.531-1.561	514
1.562-1.592	515
1.593-1.624	516

Length 1.62

For use on AC 1600, 2610, 4610, 5610	
RANGE	COLLET NO.
1.468-1.499	AC 601
1.500-1.530	602
1.531-1.561	603
1.562-1.592	604
1.593-1.624	605
1.625-1.655	606
1.656-1.686	607
1.687-1.717	608
1.718-1.749	609
1.750-1.780	610
1.781-1.811	611
1.812-1.842	612
1.843-1.874	613
1.875-1.905	614
1.906-1.936	615
1.937-1.967	616
1.968-1.999	617
2.000-2.030	618
2.031-2.061	619
2.062-2.092	620

Length 1.82

For use on AC 1700, 2710, 4710, 5710	
RANGE	COLLET NO.
1.937-1.967	AC 701
1.968-1.999	702
2.000-2.030	703
2.031-2.061	704
2.062-2.092	705
2.093-2.124	706
2.125-2.155	707
2.156-2.186	708
2.187-2.217	709
2.218-2.249	710
2.250-2.280	711
2.281-2.311	712
2.312-2.342	713
2.343-2.374	714
2.375-2.405	715
2.406-2.436	716
2.437-2.467	717
2.468-2.499	718
2.500-2.530	719
2.531-2.562	720
2.563-2.593	721
2.594-2.624	722
2.625-2.655	723
2.656-2.686	724
2.687-2.718	725
2.719-2.749	726
2.750-2.780	727
2.781-2.811	728
2.812-2.843	729

Length 2.00

For use on AC 1800, 2810, 4810	
RANGE	COLLET NO.
2.562-2.593	AC 801
2.594-2.624	802
2.625-2.655	803
2.656-2.686	804
2.687-2.718	805
2.719-2.749	806
2.750-2.780	807
2.781-2.811	808
2.812-2.843	809
2.844-2.874	810
2.875-2.905	811
2.906-2.936	812
2.937-2.968	813
2.969-2.999	814
3.000-3.030	815
3.031-3.061	816
3.062-3.093	817
3.094-3.124	818
3.125-3.155	819
3.156-3.186	820
3.187-3.218	821
3.219-3.249	822

Length 2.25

For use on AC 1800, 2810, 4810	
RANGE	COLLET NO.
3.250-3.280	AC 823
3.281-3.311	824
3.312-3.343	825
3.344-3.374	826
3.375-3.405	827
3.406-3.436	828
3.437-3.468	829
3.469-3.499	830
3.500-3.530	831
3.531-3.561	832
3.562-3.593	833

Length 2.25

For use on AC 1900, 2910, 4910	
RANGE	COLLET NO.
3.312-3.343	AC 901
3.344-3.374	902
3.375-3.405	903
3.406-3.436	904
3.437-3.468	905
3.469-3.499	906
3.500-3.530	907
3.531-3.561	908
3.562-3.593	909
3.594-3.624	910
3.625-3.655	911
3.656-3.686	912
3.687-3.718	913
3.719-3.749	914
3.750-3.780	915
3.781-3.811	916
3.812-3.843	917
3.844-3.874	918
3.875-3.905	919
3.906-3.936	920
3.937-3.968	921
3.969-3.999	922
4.000-4.030	923
4.031-4.061	924
4.062-4.093	925
4.094-4.124	926
4.125-4.155	927
4.156-4.186	928
4.187-4.217	929
4.218-4.249	930
4.250-4.280	931
4.281-4.311	932
4.312-4.342	933
4.343-4.374	934
4.375-4.405	935
4.406-4.436	936
4.437-4.467	937

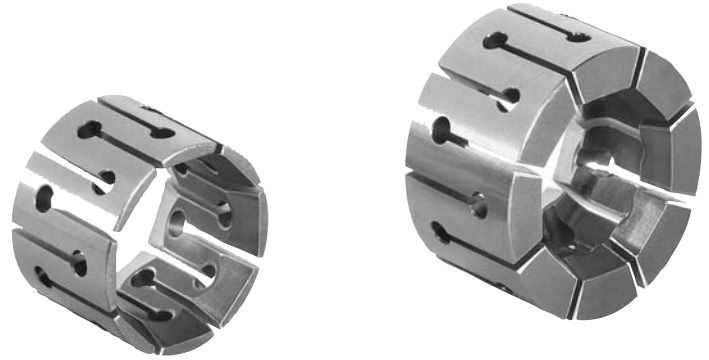
Length 2.50

Oversize collets AC 107-110; 209-212 and 311-318 should be used only in light turning or grinding operations.

# N.A. Woodworth

## Tork-Lok Collets

- Silicone Sealing of collet slots for special jobs is available on request.
- Collets in oversize (overlap) ranges are available (see shaded areas in each range).



### Short Series

For use on AC 7100A, 8100, 10110, 12100	
RANGE	COLLET NO.
.500-.510	AC 7101
.511-.520	7102
.521-.531	7103
.532-.541	7104
.542-.552	7105
.553-.562	7106
.563-.572	7107
.573-.582	7108
.583-.592	7109
.593-.603	7110
.604-.613	7111
.614-.624	7112
.625-.634	7113
.635-.645	7114
.646-.655	7115

Length  
.59

For use on AC 7200A, 8200, 10210, 12200	
RANGE	COLLET NO.
.593-.603	AC 7201
.604-.613	7202
.614-.624	7203
.625-.634	7204
.635-.645	7205
.646-.655	7206
.656-.666	7207
.667-.676	7208
.677-.687	7209
.688-.697	7210
.698-.707	7211
.708-.717	7212
.718-.727	7213
.728-.737	7214
.738-.747	7215
.748-.757	7216
.758-.767	7217
.768-.777	7218
.778-.787	7219
.788-.797	7220

Length  
.72

For use on AC 7300A, 8300, 10310, 12300	
RANGE	COLLET NO.
.718-.727	AC 7301
.728-.737	7302
.738-.747	7303
.748-.757	7304
.758-.767	7305
.768-.777	7306
.778-.787	7307
.788-.797	7308
.798-.807	7309
.808-.817	7310
.818-.827	7311
.828-.837	7312
.838-.847	7313
.848-.856	7314
.857-.866	7315
.867-.874	7316
.875-.884	7317
.885-.895	7318
.896-.905	7319
.906-.916	7320
.917-.926	7321
.927-.937	7322
.938-.947	7323
.948-.958	7324
.959-.968	7325
.969-.979	7326
.980-.989	7327
.990-1.000	7328

Length  
.84

For use on AC 7400A, 8400, 10410, 12400	
RANGE	COLLET NO.
.875-.895	AC 7401
.896-.916	7402
.917-.937	7403
.938-.958	7404
.959-.979	7405
.980-1.000	7406
1.001-1.021	7407
1.022-1.024	7408
1.043-1.063	7409
1.064-1.084	7410
1.085-1.104	7411
1.105-1.124	7412
1.125-1.146	7413
1.147-1.168	7414
1.169-1.190	7415
1.191-1.212	7416
1.213-1.234	7417
1.235-1.256	7418
1.257-1.278	7419
1.279-1.299	7420

Length  
.94

For use on AC 7500A, 8500, 10510, 12500	
RANGE	COLLET NO.
1.125-1.146	AC 7501
1.147-1.168	7502
1.169-1.190	7503
1.191-1.212	7504
1.213-1.234	7505
1.235-1.256	7506
1.257-1.278	7507
1.279-1.299	7508
1.300-1.320	7509
1.321-1.341	7510
1.342-1.362	7511
1.363-1.383	7512
1.384-1.404	7513
1.405-1.425	7514
1.426-1.446	7515
1.447-1.467	7516
1.468-1.489	7517
1.490-1.511	7518
1.512-1.533	7519
1.534-1.555	7520
1.556-1.577	7521
1.578-1.599	7522
1.600-1.621	7523
1.622-1.642	7524

Length  
1.125

For use on AC 7600A, 8600, 10610, 12600	
RANGE	COLLET NO.
1.468-1.489	AC 7601
1.490-1.511	7602
1.512-1.533	7603
1.534-1.555	7604
1.556-1.577	7605
1.578-1.599	7606
1.600-1.621	7607
1.622-1.642	7608
1.643-1.663	7609
1.664-1.684	7610
1.685-1.705	7611
1.706-1.726	7612
1.727-1.747	7613
1.748-1.768	7614
1.769-1.789	7615
1.790-1.810	7616
1.811-1.810	7617
1.832-1.852	7618
1.853-1.873	7619
1.874-1.894	7620
1.895-1.915	7621
1.916-1.936	7622
1.937-1.957	7623

Length  
1.22

For use on AC 7600A, 8600, 10610, 12600	
RANGE	COLLET NO.
1.958-1.978	AC 7624
1.979-1.999	7625
2.000-2.020	7626
2.021-2.041	7627
2.042-2.062	7628
2.063-2.083	7629
2.084-2.104	7630

Length  
1.22

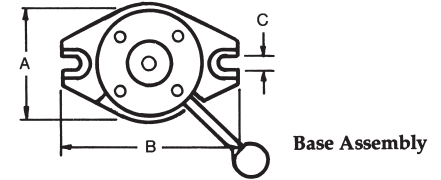
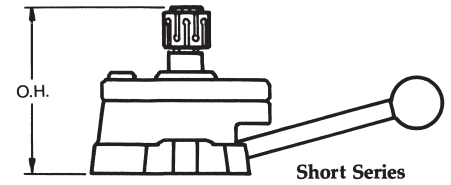
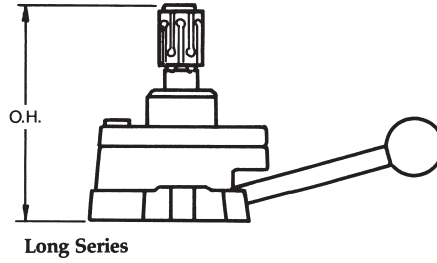
For use on AC 7700A, 8700, 10710, 12700	
RANGE	COLLET NO.
1.937-1.957	AC 7701
1.958-1.978	7702
1.979-1.999	7703
2.000-2.020	7704
2.021-2.041	7705
2.042-2.062	7706
2.063-2.083	7707
2.084-2.140	7708
2.105-2.125	7709
2.126-2.146	7710
2.147-2.167	7711
2.168-2.188	7712
2.189-2.209	7713
2.210-2.230	7714
2.231-2.251	7715
2.252-2.272	7716
2.273-2.293	7717
2.294-2.314	7718
2.315-2.335	7719
2.336-2.356	7720
2.357-2.377	7721
2.378-2.398	7722
2.399-2.419	7723
2.420-2.440	7724
2.441-2.461	7725
2.462-2.481	7726
2.482-2.501	7727
2.502-2.521	7728
2.522-2.541	7729
2.542-2.561	7730
2.562-2.583	7731
2.584-2.604	7732
2.605-2.625	7733
2.626-2.646	7734
2.647-2.667	7735
2.668-2.689	7736
2.690-2.711	7737
2.712-2.733	7738
2.734-2.755	7739
2.756-2.777	7740
2.778-2.799	7741
2.800-2.821	7742

Length  
1.31

Oversize collets AC 7110-7115; 7213-7220 and 7317-7328 should be used only in light turning or grinding operations.

# N.A. Woodworth

## Manual Tork-Lok Fixtures for Milling and Drilling



The Tork-Lok Fixture is a powerful locking mechanism for use with Tork-Lok Arbors. It features low initial cost and little maintenance for milling and drilling operations.

### Long Series

Assembly No.	O.H.	Arbor Assembly	"C" Connector
AC-5110	4.30	AC-2110	AC-172-A
AC-5210	4.50	AC-2210	AC-172-A
AC-5310	4.77	AC-2310	AC-174-A
AC-5410	5.39	AC-2410	AC-472-A
AC-5510	5.70	AC-2510	AC-473-A
AC-5610	5.95	AC-2610	AC-672-A
AC-5710	6.27	AC-2710	AC-672-A

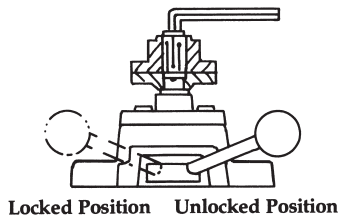
### Short Series

Assembly No.	O.H.	Arbor Assembly	"D" Connector
AC-12100	3.62	AC-8100	AC-12272
AC-12200	3.78	AC-8200	AC-12272
AC-12300	3.96	AC-8300	AC-12372
AC-12400	4.16	AC-8400	AC-12472
AC-12500	4.40	AC-8500	AC-12572
AC-12600	4.74	AC-8600	AC-12672
AC-12700	4.79	AC-8700	AC-12672

### Base Assembly

Base Assembly	Dimensions		
	A	B	C
AC-6100	3.75	6.38	.56
AC-6400	4.50	6.88	.56
AC-6600	5.25	7.75	.56

### Operating Instructions

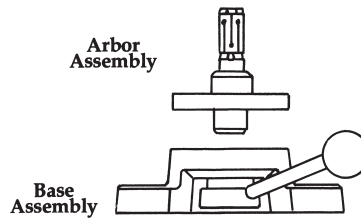


1. Mount fixture on machine.
2. Adjust expander with Allen wrench so that part is a slip fit on collet. Be sure collet and arbor flats mate on both ends.
3. To clamp part, move handle clockwise.
4. To release part, move handle counter-clockwise.

### Ordering Instructions

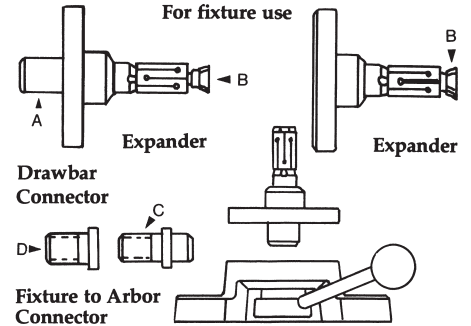
A complete fixture is ready to mount on your machine. When ordering additional arbor assemblies for fixture use, indicate connector also. When ordering base assemblies, indicate connector(s) desired.

### To Change Arbor Assemblies



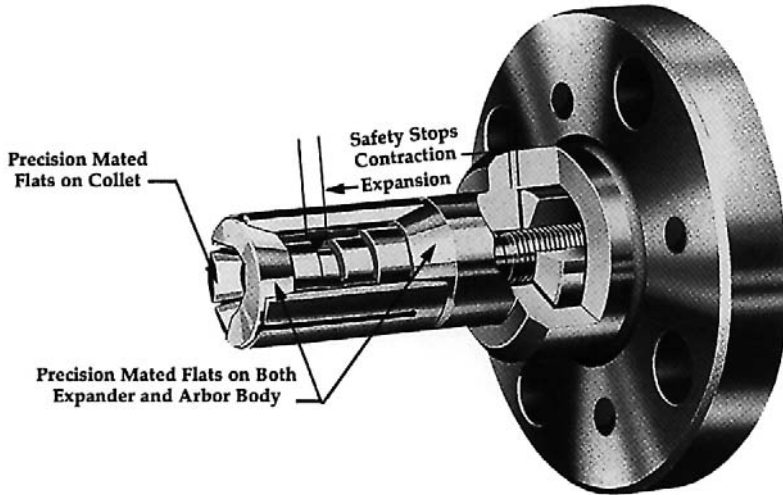
- From one size range to another using same base assembly. (See chart above for arbor assembly and connector.)
1. Remove cap screws and turn arbor assembly off the base clockwise.
  2. CAUTION! Handle must be in unlocked position.
  3. Turn replacement arbor assembly counter-clockwise into base until snug. Continue movement until holes line up. Replace cap screws.

### Adaptation of Drawbar Models



1. Procure proper fixture base and connector to accommodate drawbar model you have. (See chart above.)
2. Remove drawbar connector (A) by backing out expander (B) with Allen wrench until connector is free. Remove retaining ring.
3. Insert fixture connector (C or D) by turning in expander (B) until flats mate and are firm on both ends. No retaining ring is necessary.
4. CAUTION! Handle must be in unlocked position.
5. Turn assembly counter-clockwise into base assembly until snug. Continue movement until holes line up. Replace cap screws.

## Installation and Operating Instructions

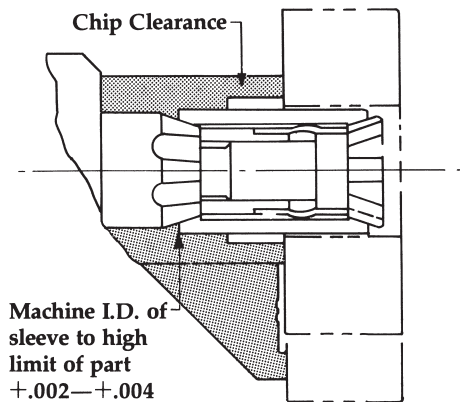


### Safety Stops

The expansion safety stop is fixed in all styles and requires no adjustment. The contraction or loading position safety stop is adjusted to suit the part being chucked.

### Preload

All collets are manufactured to include a preload. Collets should not be adjusted below the range minimum for that collet. Preloads are .008 average on sizes from .500-.874 and .015 from .875-4.467.



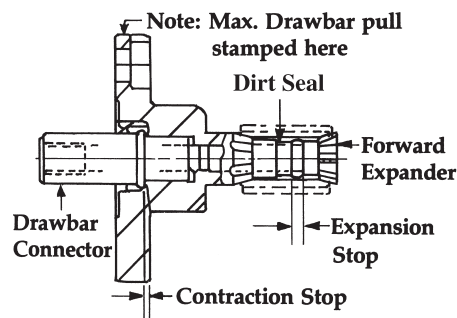
### Special Work Stop Consideration...

Combination Work Stop and Retaining Sleeve... Restrictor Type Work Stops are necessary for parts whose gripping length is shorter than the collet. Since the Tork-Lok collet expands at both ends, a retaining sleeve is needed to prevent the free end of the collet from over expanding; and a Restrictor Expander is used to reduce the expansion safety stop, preventing collet breakage (in case arbor is operated without a part in position).

**Note:** All Tork-Lok arbor applications require a part stop.

**Note:** If Restrictor Type Stop is used, a special Restrictor Expander is required. Contact *ITW* Workholding for more information.

### Drawbar

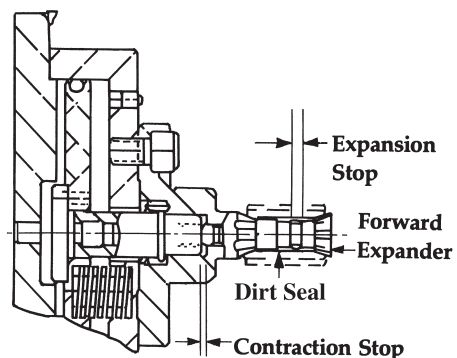


### Drawbar Model

Drawbar should be in forward or push position. Adjust forward expander with allen wrench until part is a slip fit on the collet. Collet flats both ends must mate.

**Collet Changing:** Drawbar should be in forward position. Using Allen wrench remove forward expander. Collet and rubber sleeve can then be removed. Wash parts in clean solvent. Lightly grease expander flats and collet flats. Replace dirt seal and place collet into position, with flats in contact. Install forward expander. Adjust according to instructions outlined above.

### Air-Operated



### Air-Operated Model

Air pressure on the cylinder should be at 70 P.S.I. Adjust forward expander with Allen wrench until part is a slip fit on the collet. Collet flats on both ends must mate.

**Collet Changing:** With air pressure at 70 P.S.I. follow instructions listed in Drawbar Model.

**To Interchange Assemblies:** Apply 70 P.S.I., remove mounting screws, turn arbor assembly counterclockwise until drawbar disengages from piston assembly.

To mount assembly, apply 70 P.S.I. Be sure threads on drawbar are clean and oiled. Turn arbor assembly clockwise until face contacts cylinder. Back off to align tapped holes in cylinder. Insert screws and adjust according to instructions outlined above.

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