

ROTOR CLAMP[®]

SELF-COMPENSATING HOSE CLAMPS



***The World's Quality Source for
Self-Compensating Hose Clamps.***

The ROTOR CLAMP Advantage

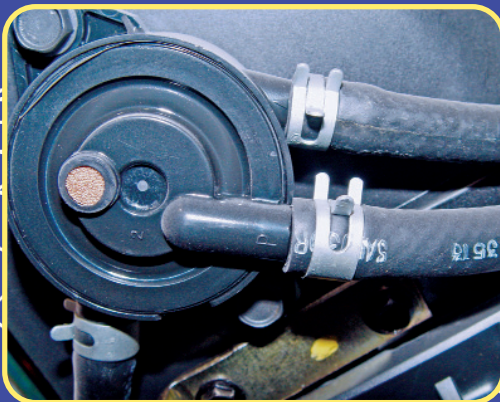
NOW YOU HAVE A CHOICE: Competition makes for a healthy marketplace and Rotor Clamp provides a double dose of it with its full line of 100% AMERICAN MADE, self-compensating hose clamps. Purchase clamps at a low price from a manufacturer known for its quality and reliability. Use our products with confidence since they are produced by Rotor Clip Company, Inc., a world class manufacturer of retaining rings and hose clamps.

Rotor Clamp is currently certified to ISO/TS16949:2002. With continuous improvement as our theme, we move into the future ready to meet our customer's demand for quality innovation and process savings.

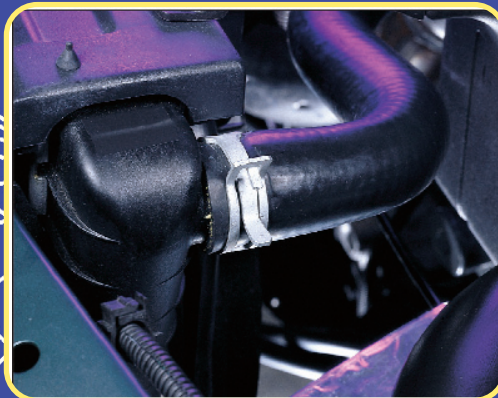
Easier to install and less expensive than the standard screw/worm type clamps, Rotor Clamp self-compensating hose clamps are extremely effective for low pressure applications.

Control your costs and contribute to your company's profitability. Order self-compensating hose clamps from Rotor Clamp today.

APPLICATIONS



CTL Clamp on a small engine application.



CTB Clamp on automotive cooling system.



Double wire clamp on appliance pump.



Rotor Clamp CTB hose clamps in use on plastic water valve.

COMPARISON

ROTOR CLAMP SELF-COMPENSATING HOSE CLAMPS

- *Expands/Contracts with hose in response to temperature changes.
- *Cannot be over/under tightened.
- *Can be installed automatically eliminating Carpal Tunnel Syndrome (CTS), a nerve disorder of the hand and wrist
- *Less time for assembly - resulting in lowered production costs.



COMPETITION SCREW / WORM TYPE HOSE CLAMPS

- *Must be manually adjusted as temperature changes.
- *Screw mechanism maybe over/under tightened causing damage/leakage to the hose.
- *Must be manually installed.
- *More time needed for assembly/disassembly due to screw adjustment.



www.rotorclamp.com

www.rotorclamp.com offers everything you need to make smart and informed decisions when procuring hose clamps for your application.

Product Catalog

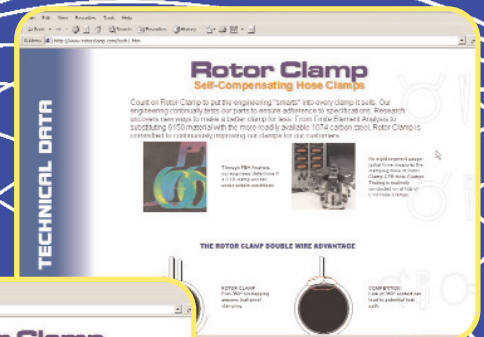
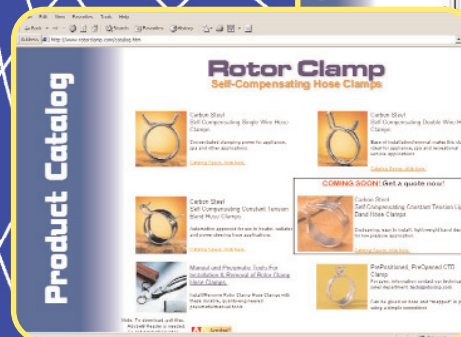
Online Sample Request

Online Quote Request

Technical Data

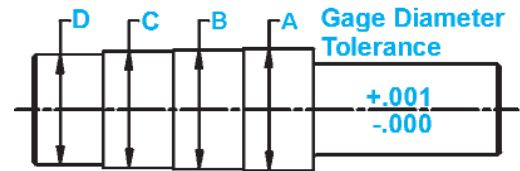
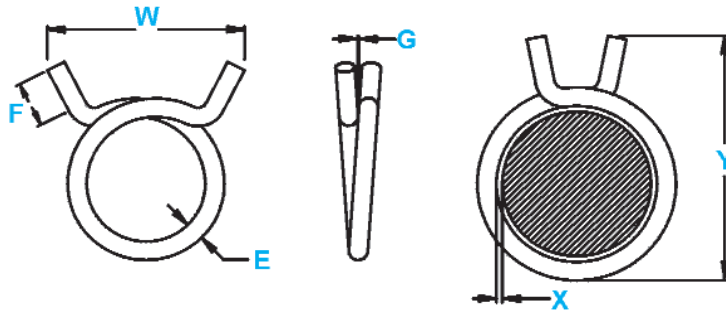
Applications

Joint Design





HC Hose Clamps - Single Wire



NOTE: Safety glasses should be worn when installing parts

EFFECTIVE CLAMPING RANGE: After expanding to no greater than "A" diameter of the gage, the clamp in relaxed condition shall not pass over "D" diameter. When clamp is assembled on "A", "B" or "C" diameter of gage, a wire of "X" diameter shall not pass between gage and clamp when inserted in a direction parallel to the axis of the gage.

FINISH: Peen-Plate Zinc (non-electrolytic process) .0002 minimum thickness plus dichromate treatment.

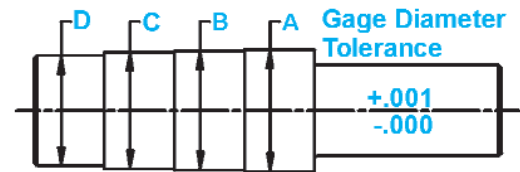
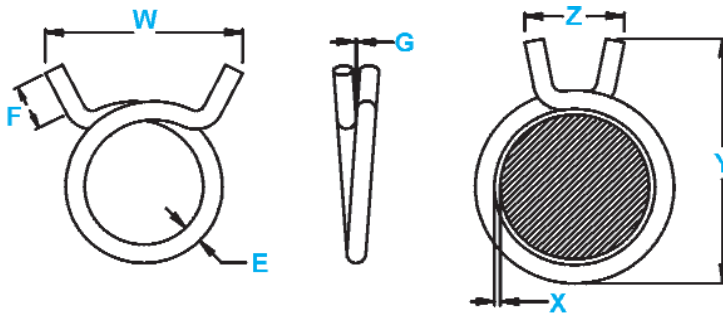
MATERIAL: Specially processed premium grade spring wire, hardened and austempered to meet the performance requirements specified.

Note: All dimensions are in inches. Conforms to SAE spec. J1508.

	Rotor Clamp HC No.	Case Quantity Min.	Approx. Case Weight (lbs.)	EFFECTIVE CLAMPING RANGE				E Nom. Wire Dia.	F Length of Tangs	G Clearance at overlap Max.	W Width over Tangs Max.	X Gaging Wire Max.	Y Overall Height (Ref. Only)	Color Code *	Pneumatic Installation Tool
				A Max. Dia.	B Nom. Dia.	C Min. Dia.	D No-Go Gage Dia.								
19N	HC-4	15000	25.7	.253	.250	.247	.233	.062	3/8	.010	.75	.003	.88	G	PWS-4
	HC-5	10000	18.6	.315	.312	.309	.286	.062	3/8	.010	.75	.003	1.00	R	PWS-5
	HC-5.5	10000	19.8	.345	.342	.339	.320	.062	3/8	.010	.75	.003	1.00	G	PWS-5.5
	HC-6	10000	37.9	.380	.375	.370	.350	.082	3/8	.015	.88	.004	1.06	D	PWS-6
	HC-7	8000	38.9	.442	.437	.432	.405	.087	3/8	.015	.94	.004	1.12	G	PWS-7
	HC-7.5	7500	37.5	.473	.468	.463	.430	.087	3/8	.015	1.00	.005	1.12	D	PWS-7.5
	HC-8	6000	33.7	.510	.500	.490	.462	.092	3/8	.025	1.00	.005	1.19	R	PWS-8
	HC-8.5	6000	34.8	.541	.531	.521	.492	.092	3/8	.025	1.00	.005	1.38	G	PWS-8.5
	HC-9	4500	38.0	.573	.562	.551	.520	.107	3/8	.025	1.06	.006	1.38	D	PWS-9
	HC-9.5	4500	39.0	.604	.593	.582	.550	.107	3/8	.025	1.06	.006	1.38	R	PWS-9.5
35N	HC-10	4000	34.8	.640	.625	.610	.580	.107	3/8	.025	1.06	.006	1.38	G	PWS-10
	HC-10.5	4000	37.6	.671	.656	.641	.611	.107	3/8	.025	1.06	.006	1.38	D	PWS-10.5
	HC-11	3500	37.0	.703	.687	.671	.635	.112	3/8	.025	1.12	.006	1.50	R	PWS-11
	HC-12	3000	33.0	.770	.750	.730	.690	.112	3/8	.031	1.19	.008	1.50	D	PWS-12
	HC-13	2500	30.7	.832	.812	.792	.740	.117	3/8	.031	1.25	.008	1.50	G	PWS-13
	HC-14	2000	28.2	.900	.875	.850	.800	.122	3/8	.031	1.25	.008	1.62	R	PWS-14
	HC-15	2000	31.0	.968	.937	.906	.855	.122	3/8	.062	1.25	.008	1.69	D	PWS-15
	HC-16	1750	32.9	1.031	1.000	.969	.915	.132	3/8	.062	1.31	.008	1.75	G	PWS-16
	HC-17	1400	32.6	1.090	1.062	1.034	.960	.142	3/8	.062	1.50	.010	1.88	R	PWS-17
	HC-17.5	1250	32.5	1.124	1.093	1.065	.991	.152	3/8	.062	1.50	.010	1.90	R	PWS-17.5
1/2 Keg	HC-18	1000	28.0	1.150	1.125	1.100	1.030	.152	3/8	.062	1.62	.010	2.00	D	PWS-18
	HC-188	1500	26.4	1.150	1.125	1.100	1.030	.122	3/8	.062	1.62	.010	2.00	D	PWS-188
	HC-19	1000	28.3	1.218	1.187	1.156	1.095	.152	3/8	.062	1.62	.010	2.00	G	PWS-19
	HC-19.5	1000	29.3	1.250	1.218	1.187	1.126	.152	3/8	.062	1.63	.010	2.00	R	PWS-19.5
	HC-20	1000	30.0	1.280	1.250	1.219	1.145	.152	3/8	.062	1.75	.010	2.00	R	PWS-20
	HC-21	800	28.8	1.344	1.312	1.281	1.210	.162	3/8	.062	1.75	.010	2.31	D	PWS-21
	HC-22	800	29.6	1.406	1.375	1.344	1.250	.162	3/8	.062	1.88	.010	2.31	G	PWS-22
	HC-23	750	25.5	1.468	1.437	1.406	1.300	.162	3/8	.062	1.88	.010	2.31	R	PWS-23
	HC-24	600	23.4	1.531	1.500	1.469	1.350	.162	3/8	.062	1.88	.010	2.38	D	PWS-24
	HC-25	600	23.6	1.592	1.561	1.530	1.411	.162	3/8	.062	1.88	.010	2.53	D	PWS-25
1/2 Keg	HC-26	600	28.8	1.672	1.625	1.578	1.455	.172	3/8	.062	2.00	.010	2.69	D	PWS-26
	HC-28	500	25.0	1.797	1.750	1.703	1.550	.172	3/8	.062	2.12	.010	2.75	D	PWS-28
	HC-30	500	29.0	1.937	1.875	1.812	1.675	.177	3/8	.093	2.25	.010	2.88	D	PWS-30
	HC-31	500	29.5	2.000	1.937	1.875	1.720	.177	3/8	.093	2.25	.010	3.00	D	PWS-31
	HC-32	500	30.0	2.061	2.000	1.939	1.750	.177	3/8	.093	2.31	.010	3.00	D	PWS-32
	HC-34	500	31.9	2.187	2.125	2.062	1.860	.182	3/8	.093	2.31	.010	3.19	D	PWS-34
	HC-35	500	34.2	2.250	2.187	2.125	1.925	.182	3/8	.093	2.31	.010	3.25	D	PWS-35
	HC-36	500	34.5	2.312	2.250	2.187	2.000	.182	3/8	.093	2.38	.010	3.25	D	PWS-36
	HC-38	500	39.5	2.437	2.375	2.312	2.100	.192	3/8	.093	2.38	.010	3.44	D	PWS-38
	HC-40	500	41.5	2.561	2.500	2.439	2.187	.192	3/8	.093	2.38	.010	3.62	D	PWS-40
1/2 Keg	HC-42	400	39.2	2.688	2.625	2.562	2.320	.220	3/8	.093	2.38	.010	3.75	D	PWS-42
	HC-46	400	41.9	2.938	2.875	2.812	2.625	.220	3/8	.093	2.63	.012	3.88	D	PWS-46
	HC-50	400	53.8	3.218	3.125	3.032	2.844	.220	3/8	.125	3.12	.013	4.00	D	PWS-50

* GREEN, R RED, D DICHROMATE (YELLOW), NOTE: SELECTED SIZES AVAILABLE IN STAINLESS STEEL. INQUIRE FOR AVAILABILITY.

HW Hose Clamps - Slim Clamps



NOTE: Safety glasses should be worn when installing parts

EFFECTIVE CLAMPING RANGE: After expanding to no greater than "A" diameter of the gage, the clamp in relaxed condition shall not pass over "D" diameter. When clamp is assembled on "A", "B" or "C" diameter of gage, a wire of "X" diameter shall not pass between gage and clamp when inserted in a direction parallel to the axis of the gage.

FINISH: Peen-Plate Zinc (non-electrolytic process) .0002 minimum thickness plus dichromate treatment.

MATERIAL: Specially processed premium grade spring wire, hardened and austempered to meet the performance requirements specified.

Note: All dimensions are in inches. Conforms to SAE spec. J1508.

Rotor Clamp HC No.	Case Quantity Min. 1 case	Approx. Case Weight (lbs.)	E Nom. Wire Dia.	EFFECTIVE CLAMPING RANGE				X Dia. Gaging Wire	G Clearance at overlap Max.	F Length of Tangs	W Width over Tangs Max.	Z Width over Tangs when on a Dia.	Y Overall Height (Ref. Only)	Color Code *	Pneumatic Installation Tool
				A Max. Dia.	B Nom. Dia.	C Min. Dia.	D No-Go Gage Dia.								
HW-9	8000	39	.082	.573	.562	.551	.520	.006	.025	1/4 +.000-1/32	1-1/16	.415 +.020-.000	1.25	ZD	PWS-9
HW-11	6000	33	.087	.703	.688	.671	.635	.006	.025	1/4 +.000-1/32	1-1/8	.425 +.020-.000	1.38	R	PWS-11
HW-12	5000	30	.087	.770	.750	.730	.690	.008	.031	1/4 +.000-1/32	1-3/16	.425 +.020-.000	1.38	ZD	PWS-12
HW-13	4000	28	.092	.832	.812	.792	.740	.008	.031	1/4 +.000-1/32	1-1/4	.410 +.020-.000	1.38	G	PWS-13
HW-14	3000	26	.092	.900	.875	.850	.800	.008	.031	1/4 +.000-1/32	1-1/4	.410 +.020-.000	1.49	R	PWS-14
HW-16	2500	29	.107	1.031	1.000	.969	.915	.008	.062	1/4 ±1/32	1-1/2	.510 +.020-.000	1.75	G	PWS-16
HW-18	1700	28	.122	1.150	1.125	1.100	1.030	.010	.062	1/4 ±1/32	1-5/8	.525 +.020-.000	1.88	ZD	PWS-18
HW-19	1400	24	.122	1.218	1.187	1.152	1.095	.010	.062	1/4 ±1/32	1-5/8	.510 +.020-.000	1.88	G	PWS-19
HW-20	1400	23	.122	1.280	1.250	1.219	1.145	.010	.062	1/4 ±1/32	1-3/4	.525 +.030-.000	1.88	R	PWS-20
HW-21	1300	28	.132	1.344	1.312	1.281	1.210	.010	.062	1/4 ±1/32	1-3/4	.540 +.030-.000	2.19	ZD	PWS-21
HW-22	1000	22	.132	1.406	1.375	1.344	1.250	.010	.062	1/4 ±1/32	1-7/8	.540 +.030-.000	2.19	G	PWS-22
HW-23	1000	23	.132	1.468	1.437	1.406	1.300	.010	.062	1/4 ±1/32	1-7/8	.525 +.030-.000	2.19	R	PWS-23
HW-24	1000	24	.132	1.531	1.500	1.469	1.350	.010	.062	1/4 +1/16-.000	1-7/8	.540 +.030-.000	2.25	ZD	PWS-24
HW-26	900	27	.142	1.672	1.625	1.578	1.455	.010	.062	1/4 ±1/16	2	.580 +.030-.000	2.56	ZD	PWS-26

* GREEN, R-RED, ZD-DICHROMATE (YELLOW)

PreOpened, PrePositioned Clamps

This unique, patented version of a preopened clamp is held in the open position by compressing the tangs and allowing the stop to hook on to a complementary notch on the side of one of the tangs. The hook catches this "dimple" when the clamp is opened for a more secure hold.

The clamp can then be glued in position on a hose. The mechanism to hold the clamp open is accomplished with only minor changes to the original design of the clamp. The clamp cannot be preopened any further than the stop, ensuring the clamp will not be over-expanded. For more information, contact Rotor Clamp today or visit our web site at www.rotorclamp.com.



PreOpened Constant Tension Clamp



Hook and Dimple



Clamp, prepositioned on hose

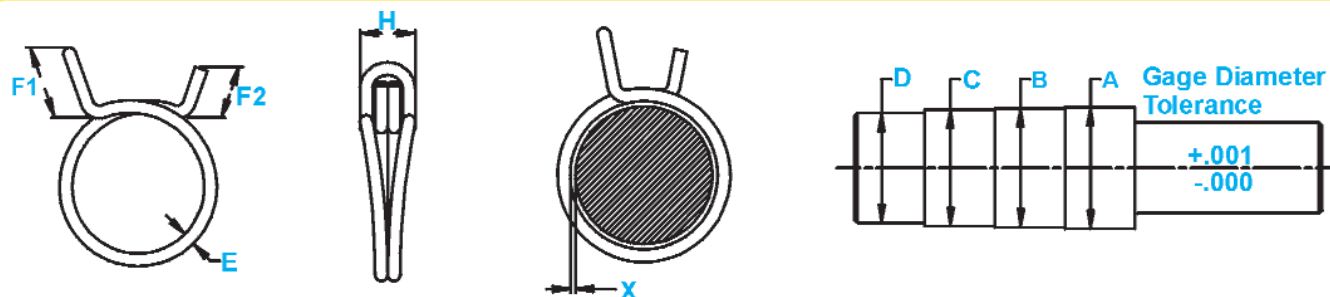
CTO Clamp is only intended for rubber hose manufacturers who pre-glue clamps to hoses before supplying to the automotive industry.



Contact factory for more information regarding options for holding CTO's in the "open" position until ready for installation.



DW Hose Clamps - Double Wire



NOTE: Safety glasses should be worn when installing parts

EFFECTIVE CLAMPING RANGE: After expanding to no greater than "A" diameter of the gage, the clamp in relaxed condition shall not pass over "D" diameter. When clamp is assembled on "A", "B" or "C" diameter of gage, a wire of "X" diameter shall not pass between gage and clamp when inserted in a direction parallel to the axis of the gage.

FINISH: Peen-Plate Zinc (non-electrolytic process) .0002 minimum thickness plus dichromate treatment.

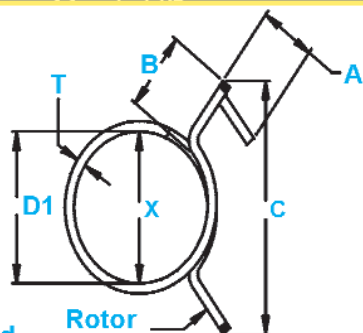
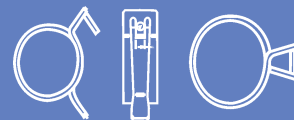
MATERIAL: Specially processed premium grade spring wire, hardened and austempered to meet the performance requirements specified.

Note: All dimensions are in inches. Conforms to SAE spec. J1508.

ROTOR CLAMP DW No.	Case Quantity Min. 1 case	Approx. Case Weight (lbs.)	A MAX. Dia.	B NOM. Dia.	C MIN. Dia.	D NO-GO GAGE Dia.	E NOM. WIRE Dia.	Ref. Dimensions		H OVER-ALL WIDTH	X GAGING WIRE	Color Code *	PNEUMATIC INSTALLATION TOOL
								F1 max.	F2 min.				
DW-4.5	10000	11	.294	.286	.274	.265	.039	.250	.190	.250	.004	D	PWD-4.5
DW-5	10000	11	.306	.301	.285	.280	.039	.250	.190	.250	.004	D	PWD-5
DW-5.5	10000	12	.345	.342	.339	.320	.039	.250	.190	.250	.004	S	PWD-5.5
DW-6	17000	22	.380	.375	.370	.350	.039	.250	.190	.250	.004	S	PWD-6
DW-6.5	8000	28	.416	.409	.401	.381	.059	.380	.250	.280	.006	D	PWD-6.5
DW-7	7000	26	.442	.438	.432	.405	.059	.380	.250	.280	.006	S	PWD-7
DW-8	7000	28	.510	.500	.490	.462	.059	.380	.250	.280	.006	R	PWD-8
DW-8.5	7000	29	.555	.539	.524	.484	.059	.380	.250	.280	.006	D	PWD-8.5
DW-9	6000	38	.573	.562	.551	.520	.070	.425	.250	.325	.006	S	PWD-9
DW-9.5	2500	34	.627	.614	.595	.555	.070	.425	.250	.325	.006	R	PWD-9.5
DW-10	4000	25	.640	.625	.610	.580	.070	.425	.250	.325	.006	G	PWD-10
DW-10.5	3000	20	.662	.646	.627	.586	.070	.425	.250	.325	.006	D	PWD-10.5
DW-11	2500	23	.703	.688	.671	.635	.078	.500	.325	.360	.008	R	PWD-11
DW-11.5	2500	24	.736	.716	.697	.650	.078	.500	.325	.360	.008	D	PWD-11.5
DW-12	2000	20	.770	.750	.730	.690	.078	.500	.325	.360	.008	S	PWD-12
DW-12.5	2000	21	.812	.795	.772	.720	.078	.500	.325	.360	.008	D	PWD-12.5
DW-13	2000	21	.832	.812	.792	.740	.078	.500	.325	.360	.008	G	PWD-13
DW-14	1500	21	.900	.875	.850	.800	.086	.550	.375	.400	.008	D	PWD-14
DW-14.5	1500	21	.928	.909	.882	.826	.086	.550	.375	.400	.008	R	PWD-14.5
DW-15	1200	17	.968	.938	.906	.855	.086	.550	.375	.400	.008	S	PWD-15
DW-16	1100	22	1.031	1.000	.969	.915	.098	.560	.375	.450	.008	D	PWD-16
DW-17	1000	21	1.090	1.062	1.034	.960	.098	.560	.375	.450	.008	R	PWD-17
DW-17.5	1000	21	1.107	1.082	1.050	.984	.098	.560	.375	.450	.008	D	PWD-17.5
DW-18	1700	37	1.150	1.125	1.100	1.030	.098	.560	.375	.450	.008	S	PWD-18
DW-19	1250	37	1.218	1.188	1.156	1.095	.110	.660	.450	.480	.010	G	PWD-19
DW-19.5	1100	33	1.260	1.232	1.196	1.117	.110	.660	.450	.480	.010	D	PWD-19.5
DW-20	1100	34	1.280	1.250	1.219	1.145	.110	.660	.450	.480	.010	R	PWD-20
DW-21	1100	35	1.344	1.312	1.281	1.210	.110	.660	.450	.480	.010	S	PWD-21
DW-22	1000	39	1.405	1.377	1.335	1.260	.118	.750	.500	.540	.010	G	PWD-22
DW-22.5	900	36	1.433	1.401	1.362	1.279	.118	.750	.500	.540	.010	S	PWD-22.5
DW-23	900	36	1.500	1.465	1.425	1.330	.118	.750	.500	.540	.010	D	PWD-23
DW-24	750	35	1.531	1.500	1.469	1.350	.126	.750	.500	.560	.010	S	PWD-24
DW-25	750	37	1.592	1.561	1.530	1.411	.126	.750	.500	.560	.010	S	PWD-25
DW-26	700	35	1.692	1.625	1.578	1.475	.126	.750	.500	.560	.010	D	PWD-26
DW-27	650	34	1.745	1.688	1.640	1.528	.126	.750	.500	.560	.010	R	PWD-27
DW-28	650	34	1.797	1.750	1.703	1.580	.126	.750	.500	.560	.010	S	PWD-28
DW-30	600	34	1.937	1.875	1.812	1.720	.126	.750	.500	.560	.010	S	PWD-30
DW-31	500	34	2.000	1.938	1.875	1.799	.137	.800	.550	.590	.010	S	PWD-31
DW-32	500	35	2.061	2.000	1.939	1.83	.137	.800	.550	.590	.010	D	PWD-32
DW-34	450	33	2.187	2.125	2.062	1.946	.137	.800	.550	.590	.010	S	PWD-34
DW-35	400	30	2.250	2.187	2.125	1.975	.137	.800	.550	.590	.010	S	PWD-35
DW-36	400	31	2.300	2.250	2.187	2.000	.137	.800	.550	.59	.010	S	PWD-36

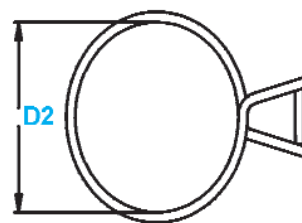
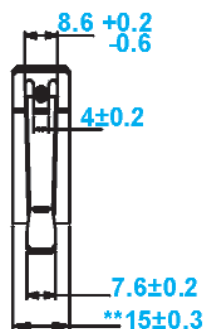
* GREEN, R-RED, D-DICHROMATE(YELLOW), NOTE:SELECTED SIZES AVAILABLE IN STAINLESS STEEL. INQUIRE FOR AVAILABILITY. ** MANUAL INSTALLATION TOOLS ALSO AVAILABLE.

CTB Hose Clamps - Constant Tension Band



D1 To be measured along "X" direction.

Rotor Clamp No.



NOTE: Safety Glasses should be worn when installing parts.

CTB Clamps should be installed/removed using the proper tool.

** Contact manufacturer for availability of additional widths.

Note: Dimensions "D1" and "C" to be measured only after expanding the clamp fully one time.

FINISH: Zinc Rich Paint* up to 700 hour-salt spray.

MATERIAL: SAE 1074 - material code ST, (Optional Material: Chrome Vanadium - DIN 17222, JIS G 4802 - material code CV.)

Note: All dimensions are in inches. Conforms to SAE spec. J1508.

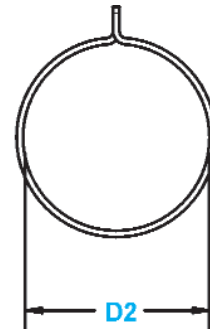
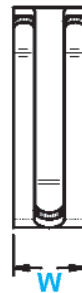
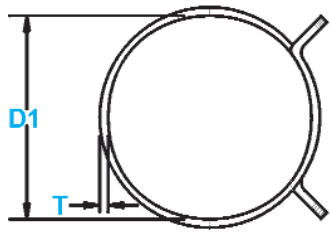
Rotor Clamp CTB No. (mm)	Case Qty. min 1 case	Weight Per m (lbs.)	Weight Per Case (lbs.)	D1 Free Dia. Max. (mm)	D2 Full Open Dia. Min. (mm)	Material Thickness T 0.08 -0.02	Reference Dimensions (All Sizes Listed In mm)		
							A (mm) Tab Height	B (mm) Ear Length	C (mm) Ear Span
CTB-13	2500	8.5	21.250	12.0	14.2	0.70	7.3	11.7	27.0
CTB-14	2500	10.2	25.500	13.5	15.3	0.80	8.0	12.5	30.0
CTB-15	2500	9.35	23.375	13.9	16.8	0.70	7.2	11.9	31.0
CTB-16	2500	12.87	32.175	14.4	17.2	1.00	6.6	10.8	28.5
CTB-17	2500	10.8	27.000	15.2	18.5	0.85	7.3	12.5	32.0
CTB-19	1800	20.3	36.540	17.8	20.0	1.30	10.4	12.0	35.0
CTB-20	1700	21.4	36.380	18.4	21.6	1.30	9.1	12.1	32.0
CTB-22	1500	23.2	34.755	20.5	24.5	1.30	8.5	12.5	36.0
CTB-23	1000	27.5	27.500	21.0	24.7	1.50	8.1	12.9	39.0
CTB-24	1250	24.0	29.975	22.0	26.0	1.30	8.1	12.7	36.0
CTB-25	1000	29.5	29.500	23.5	26.8	1.50	9.3	12.4	34.0
CTB-26	1000	31.9	31.900	24.3	28.0	1.60	10.0	12.6	34.0
CTB-27	1000	33.6	33.570	25.2	28.9	1.60	10.1	12.5	38.0
CTB-29	900	38.9	35.010	27.0	31.5	1.73	10.3	13.3	35.0
CTB-30	900	38.2	34.380	28.0	32.5	1.73	11.4	13.4	41.0
CTB-32	700	38.9	27.230	29.3	34.5	1.73	11.7	12.1	44.0
CTB-35	700	44.2	30.940	31.5	38.0	1.73	11.1	15.0	50.0
CTB-36	700	44.4	31.080	32.5	39.0	1.73	11.3	13.3	48.0
CTB-38	600	47.5	28.500	34.5	41.5	1.73	10.2	15.1	52.0
CTB-40	600	47.9	28.740	35.5	42.5	1.73	11.1	13.0	52.0
CTB-42	500	54.0	27.000	37.2	44.5	1.90	10.6	14.7	52.0
CTB-44	500	56.1	28.050	38.5	46.5	1.90	11.0	14.5	53.0
CTB-46	500	61.4	30.675	40.5	48.5	2.00	11.5	14.4	55.0
CTB-47	450	63.5	28.575	41.4	50.0	2.00	13.2	14.3	59.0
CTB-50	450	67.1	30.195	43.5	53.0	2.00	11.3	14.4	59.0
CTB-51	350	67.4	23.590	44.0	54.0	2.00	11.2	15.6	60.0
CTB-53	300	77.8	23.340	46.0	55.8	2.20	11.1	16.5	61.0
CTB-55	250	79.0	19.750	46.8	58.0	2.20	11.3	15.2	65.0
CTB-58	250	85.1	21.275	50.0	61.0	2.25	10.5	14.8	66.0
CTB-61	200	98.9	19.780	54.0	65.0	2.40	12.2	15.0	69.0
CTB-67	175	108.5	18.988	60.0	72.0	2.40	13.1	16.0	78.0

* Magni 511 offers five times the corrosion protection over traditional zinc plating. It is available in Black, Silver, Brown, Tan, Blue, Green and Red (Mechanical Zinc is also available along with other finishes. Inquire for more information).

Magni 511 meets the following automotive specifications: General Motors: GM-7111-M; GM-7112-M; Ford Motor Company: ESA-M21P5A; Ford World Wide: WSD-21P11-B1, WSD-21P11-B2; Chrysler Corporation: P5-7626.



CTL Hose Clamps - Constant Tension Band Light

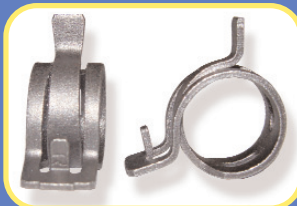


Note: Safety Glasses should be worn when installing parts.

FINISH: Phosphate; Mechanical Zinc Plate

MATERIAL: SAE 1060-1090 Spring Steel, Austempered

Rotor Clamp CTL No.	Nom. Hose O.D.		Free I.D. Max. D1		Full Open Diameter Min. D2		W (Ref)		T Thickness	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
CTL-4	.23	5.9	.210	5.33	.250	6.35	.25	6.3	.020	.51
CTL-4.5	.28	7.1	.240	6.10	.300	7.62	.25	6.3	.015	.38
CTL-4.5 SP1	.28	7.1	.240	6.10	.300	7.62	.25	6.3	.020	.51
CTL-5	.31	7.9	.301	7.65	.345	8.76	.31	7.9	.030	.76
CTL-6	.38	9.5	.321	8.15	.405	10.29	.31	7.9	.020	.51
CTL-6 SP1	.38	9.5	.335	8.51	.410	10.41	.31	7.9	.020	.51
CTL-6.5	.41	10.3	.375	9.53	.450	11.43	.31	7.9	.025	.64
CTL-7	.44	11.1	.405	10.29	.485	12.32	.31	7.9	.025	.64
CTL-7.5	.47	11.9	.430	10.92	.515	13.08	.31	7.9	.025	.64
CTL-8	.50	12.7	.460	11.68	.545	13.84	.31	7.9	.030	.76
CTL-8.5	.53	13.5	.490	12.45	.573	14.55	.31	7.9	.030	.76
CTL-9	.56	14.3	.500	12.70	.621	15.77	.31	7.9	.030	.76
CTL-9 SP1	.56	14.3	.520	13.21	.605	15.37	.31	7.9	.030	.76
CTL-9.5	.59	15.1	.540	13.72	.650	16.51	.31	7.9	.030	.76
CTL-10	.63	15.9	.583	14.81	.668	16.97	.31	7.9	.030	.76
CTL-10.5	.66	16.7	.620	15.75	.725	18.42	.31	7.9	.030	.76
CTL-11	.69	17.5	.583	14.81	.720	18.29	.31	7.9	.030	.76
CTL-11 SP1	.69	17.5	.639	16.23	.709	18.01	.31	7.9	.045	1.14
CTL-11 SP2	.69	17.5	.655	16.64	.750	19.05	.31	7.9	.030	.76
CTL-11.5	.72	18.3	.685	17.40	.775	19.69	.38	9.5	.050	1.27
CTL-12	.75	19.1	.645	16.38	.828	21.03	.38	9.5	.030	.76
CTL-13	.81	20.6	.750	19.05	.900	22.86	.38	9.5	.040	1.02
CTL-14	.88	22.2	.810	20.58	.970	24.64	.38	9.5	.040	1.02
CTL-15	.94	23.8	.860	21.84	1.030	26.16	.38	9.5	.045	1.14
CTL-16	1.00	25.4	.910	23.11	1.080	27.43	.38	9.5	.045	1.14
CTL-16.5	1.03	26.2	.950	24.13	1.130	28.70	.38	9.5	.035	.89
CTL-17	1.06	27.0	.970	24.64	1.180	29.97	.38	9.5	.045	1.14
CTL-18	1.13	28.6	1.040	26.42	1.240	31.50	.38	9.5	.045	1.14
CTL-19	1.19	30.2	1.100	27.94	1.280	32.51	.38	9.5	.045	1.14
CTL-20	1.25	31.8	1.180	29.97	1.450	36.83	.38	9.5	.045	1.14
CTL-24	1.50	38.1	1.350	34.29	1.670	42.42	.38	9.5	.045	1.14
CTL-26	1.63	41.3	1.450	36.83	1.800	45.72	.38	9.5	.045	1.14



CTLN - CONSTANT TENSION BAND NARROW

CTLN's are available in a width of 12mm, and are typically used in places where a standard width CTB band clamp (15mm) is too wide for the application. CTLN clamps are suited for applications that would normally require a CTB clamp. Nominal diameters range from 13mm to 90mm. Contact Rotor Clamp for more specifications.

Hose Clamp Tools

INSTALL/REMOVE ROTOR CLAMP HOSE CLAMPS WITH THESE DURABLE, QUALITY ENGINEERED TOOLS.

Pneumatic Hose Clamp Tools Helps Eliminate Carpal Tunnel Syndrome



Single Wire (HC/HW) Hose Clamp
Pneumatic Tool (PWS)



Double Wire (DW) Hose Clamp
Pneumatic Tool (PWD)



Constant Tension Band (CTB)
Pneumatic Tool (PBC-1)* *Specify
PBC-1 for any Rotor Clamp CTB Hose
Clamp you are installing. One size fits all.

PNEUMATIC TOOL FEATURES:

- Tangs of the clamp fit in the jaws of the tool and are compressed for installation or removal on the hose.
- Uses a compressed air line of 90 psi.
- Activated by a simple lever reducing stress on the hand from repeated assembly/disassembly.

Manual Hose Clamp Tools For Ease Of Hose Clamp Installation/Removal



Single Wire Hose Clamp Plier
(KC-18)

Install Rotor Clamp Single Wire (HC) hose clamps quickly and easily using this simple hand tool.

ONE SIZE FITS ALL.

Specify **KC-18** for any Rotor Clamp Single Wire (HC) hose clamp you are installing.

Single Wire Hose Clamp Plier Heavy Duty (HAZ-2)

A heavy duty version of the Single Wire Plier, left. Tool locks into place when clamp is fully compressed, relieving hand pressure when installing/removing. Tips can be adjusted to desired clamp opening to ensure fast, consistent installation or removal.

ONE SIZE FITS ALL. Specify **HAZ-2** for any Rotor Clamp Single Wire (HC) hose clamp you are installing.



Constant Tension Band (CTB)
Hose Clamp Plier (HAZ-1)

A rugged, easy-to-use application tool for CTB hose clamps. Tool locks into place when clamp is fully compressed, relieving hand pressure when installing/removing.

Tips can be adjusted to desired clamp opening to ensure fast, consistent installation or removal.

ONE SIZE FITS ALL.

Specify **HAZ-1** for any Rotor Clamp Constant Tension Band (CTB) hose clamp you are installing.



Constant Tension Band Light
(CTL) Hose Clamp Plier (RPC-1)

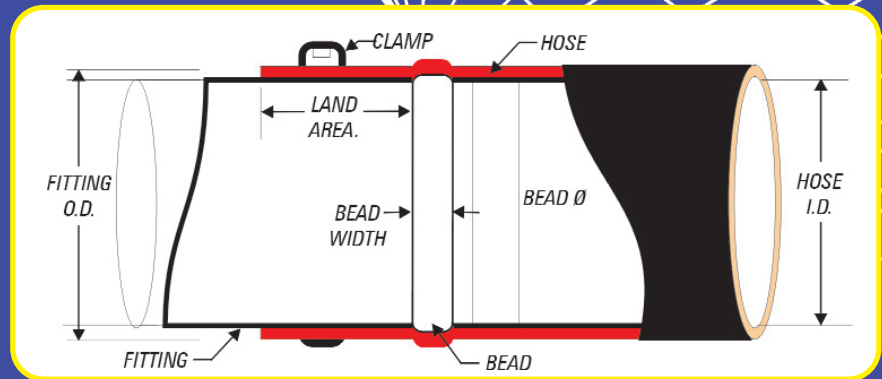
These pliers are the recommended installation tool for CTL clamps. The RPC-1 is made of high carbon, heat treated steel and is produced to exacting QC specifications. The grips of these pliers are air cushioned and facilitate the effective and comfortable installation of CTL clamps.

MANUAL TOOL FEATURES

- Rugged Construction.
- Ease of Use.
- Designed for Efficiency.

JOINT DESIGN

Three elements are required in a typical joint design: the hose, the fitting and the clamp. These elements must meet certain performance and material specifications if they are to function successfully in a given application. Here are some points to keep in mind when addressing joint design:



I. HOSE:

There are many types of hose constructions and materials. A common automotive type is EPDM rubber compound with a Shore A hardness of 60 durometer. Other materials of construction are silicone or a combination of EPDM and silicone. Many are reinforced with an inner layer of woven fabric.

- A. The hose is named after its nominal, inside diameter. For example, a 1" hose is one with an inside diameter of 1".
- B. The outside diameter depends on the wall thickness, which varies depending upon the hose type and construction. It is important to specify a hose with a closely controlled wall thickness, the smaller the tolerance the better. This will aid in sizing the clamp for the application.
- C. Constant tension type clamps transmit force more easily through a hose with a thin cross section.
- D. A higher hose durometer (hardness) means the hose is less compliant and more difficult to install. Lower durometer hoses allow the clamp to translate its force directly to the sealing surface of the fitting.
- E. The straighter the angle of the hose, the easier it is to install.

The Society for Automotive Engineers recognizes two basic types of hoses for heater and radiator applications. They are described below. (For more detailed explanation of these and other hose types, see SAE specification J20.)

- A. SAE 20R3 Heater Hose - Used for heater systems in ground transportation vehicles. Wall thickness range: for sizes less than 25.4mm, the OD is the target ID +8mm (total wall), $\pm 0.8\text{mm}$. For 25.4mm size, the OD is $34\text{mm} \pm 1.2\text{mm}$.
- B. SAE 20R4 Radiator Hose, Normal Service Type - Radiator hose for coolant circulating systems of automobile engines. Wall thickness range is 4.3 to 5.6mm for sizes smaller than 50.8mm and 4.3 to 6.4mm for sizes 50.8mm and larger.

II. CLAMP:

Rotor Clamp constant tension type hose clamps will compensate for changes in joint diameter due to compression set in a hose. This feature eliminates leaks and the need to re-torque a clamp.

A. Factors to consider when sizing a clamp:

- CTB type clamps: The clamps have a number designation equivalent to the outside diameter of the joint to be clamped, expressed in millimeters (Ex.-CTB-27).
- HC (SAE Type "E"), HW and DW (SAE type CTW)- Clamps have a range of recommended application diameters, listed in the catalog as "A", "B" and "C" diameters. The nominal diameter of the clamp is the clamp size divided by 16.
- The joint diameter will equal the fitting outside diameter plus twice the wall thickness, including the tolerances associated with each.
- The clamp must be large enough to fit over the maximum diameter of the joint bead and hose at this point (see illustration above).

ROTOR CLAMP ENGINEERS HELP YOU DESIGN THE RIGHT ELEMENTS FOR SUCCESSFUL HOSE/JOINT CONNECTION.

B. You can use a smaller clamp on an application to increase force. This can be done by placing the clamp on the fitting, installing the hose and sliding the clamp "backwards" up to the bead.

C. Ideally, a clamp should be sized to fit onto the joint when opened to 90% of full (as a safety factor) and close to no less than the nominal (size) diameter when in the final position

III. FITTING

The fitting is the portion of the joint over which the hose is installed. To reap the full benefits of a constant tension clamp joint, the fitting should have the following characteristics:

A. The fitting should be round (within .003 inches).

B. There should be interference between the fitting and the hose, typically between 5% and 10% of the hose inner diameter. (Ex. A 1" nominal diameter hose could have a 1.062" diameter fitting for a 6.2% interference fit. All tolerances should be considered when calculating this diameter).

C. The surface of the fitting should be free of pits, scratches, "dents," parting line mismatches, and any surface defect that might cause a leak.

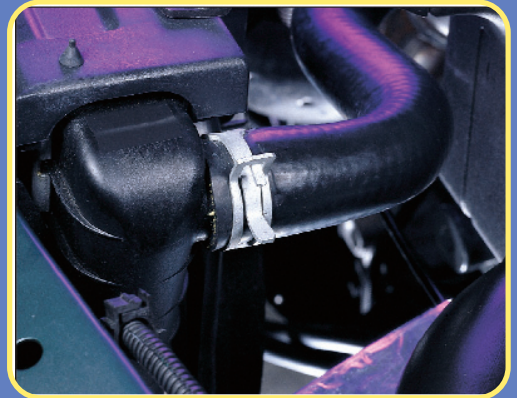
D. The fitting should contain a bead that will prevent slippage under conditions of pressure where the hose is not constrained.

- The bead diameter should be sized in such a way that the clamp can be installed over the assembled joint yet provide as much interference as possible and still facilitate acceptable assembly push on force.

- The bead width and shape should be as small as possible and still allow for easy insertion of the hose onto the fitting.

- The bead should be symmetric and should not compromise the geometry of the joint (roundness, surface defects, etc.).

E. The fitting must be of the design diameter for a length of approximately 15/16" (23.8mm) after the bead. That is, all dimensional constraints must be followed. This is necessary to seat the clamp. This means any bends, twists, diameter changes or the like can not occur until after the area in which the clamp will seat.



IV. ASSEMBLY

Clamps should be installed with specific pliers recommended for the type of clamp being used.

Expansion of the clamp beyond the intended operating diameter will diminish the force that the clamp can apply.

Any lubricating substance used to aid assembly of the hose must never be in contact with the clamp.

Such lubricants in contact with a clamp can enable a mechanism for hydrogen migration, causing failure through material fracture.

Examples of lubricants known to cause clamp failure include acetone, chlorine, fluorine, mineral oil, dish detergents, and laundry detergents.

Technically Speaking

Carbon Steel CTB Clamps Reduce Costs

Constant Tension Band hose clamps have been traditionally made from 6150 chrome-vanadium steel. However, research by Rotor Clamp indicates you can achieve the same results with 1074 carbon steel at far less the cost. SAE 1074 yields higher average hardness without the risk of untempered martensite in its structure. This translates into more robust performance with a less costly raw material. Rotor Clamp tested 1074 and 6150 CTB clamps for performance equivalency using Pressure/Temperature Leak Testing, Fatigue Testing and Radial Force Testing.



Visit www.rotorclamp.com for complete test results and additional information.

Corrosion Protection

1300 Salt Spray Protection COMPARE



Rotor Clamp CTB provides over 1,300 hours of salt spray protection.



Conventional Coating –
Note the presence of rust and corrosion under the same conditions as test (top).

Contact ROTOR CLAMP for More Information:

ROTOR CLAMP, Inc.
187 Davidson Avenue
Somerset, NJ 08873
Tel.: 732-805-6464
Fax.: 732-805-6466

1-800-54-ROTOR
www.rotorclamp.com

