



# MARINE

FRICITION MATERIAL & TRANSMISSION PARTS



PLEASURE | WORK BOATS | FISHING | PLEASURE | WORK BOATS | FISHING | PLEASURE | WORK BOATS | FISHING |

# MARINE CATALOG

ALTO PRODUCTS CORP.

## BORG WARNER (CR-2) / VELVET DRIVE 1013/14 DROP CENTER

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023801DB	1013-410-001	OVERHAUL KIT Includes Gaskets, Metal Clad Seals and Sealing Rings	1	
023901B	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
023901BLS	NL	BANNER KIT Includes Overhaul Kit and Bronze Plates	1	
023750D	NL	CLUTCH PLATE MODULE Includes 10 Bronze Plates and 6 Steel Plates	1	
049700BR	5C-A66A	Friction Forward	5-7	Bronze .060
023738BR	72A-66B	Friction Reverse	1-3	Bronze .115
023701	3-176	Steel Forward	4-6	Flat .068
023739	72-176	Steel Reverse	1-2	Flat .070
A38001	4805A	Seal - Reverse Clutch Outer	1	
023054A	5L-36	Seal - Forward Clutch Outer	1	
023002	3-61	Seal - Front Pump	1	
023020	71-144B	Gasket - Case & Adapter	1	
023022	71-14	Gasket - Valve Cover	1	
023041	1013-045-002	Gasket - Reduction Housing	1	
023042	1013-045-001	Gasket - Adapter	1	
010210A	4804H	Oring - Control Valve		
010226B	4804G	Oring - Forward Clutch Inner		
010226B	4804G	Oring - Reverse Clutch Inner		
023420	1000-044-014	Metal Clad Seal - Front Pump		
023420A	OEI	Metal Clad Seal - Front Pump		OD: 53mm/2.08"
023428	1000-044-003	Metal Clad Seal - Coupling		
023111	4806S 4806L	Sealing Ring - Teflon	2	
038105	4806J	Sealing Ring	5	
023315	1013-053-011	Spacer		
023316	1013-053-010	Spacer		

## CAPITOL HYDRASMOOTH

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
087702	17-80031	Friction Reverse Large	5	Fiber .092
087700	17-80032	Friction Direct Small	9	Fiber .072
087701	17-80029	Steel Direct Small	AR	Flat .071
087711	17-80029	Steel Direct Small	AR	Flat .061

## CAPITOL MARINE

### 5HD-200, HE 10200, 10700, 11200, 11720

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
305702	1-00230-2000	Friction	12-14	Bronze .135
305703	1-00233-0070	Steel	12-14	Flat .095
305703-390	1-00229-1700	Steel	1	Flat .155

### HY400, 6900, HY7700, 24000, 25000

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
305700	1-00230-4900	Friction	12-14	Bronze .155
305701	1-00233-1200	Steel	12-14	Flat .091

## M105, 125

# MARINE CATALOG

ALTO PRODUCTS CORP.

## CAPITOL MARINE M105, 125

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
305704	1-14186-0000	Friction	12	Bronze .125
305705	1-14185-0000	Steel	12	Flat .065

## HURTH MARINE / ZF IRM 220, 220A

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
322800	3205199501	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	
322700-220	3205302057	Friction Forward & Reverse	22	Bronze .087
322702-180	NL	Friction	1	
322750X	NL	Module	1	
322901	NL	Master Kit	1	
316711	3201302008	Steel		
322701-140	3205302062	Steel Forward & Reverse	24	
322100	0634402538 03380100	Ring, Sealing Lock	4	
322400	0634319110	Metal Clad Seal - Input	1	
322402	063400069	Metal Clad Seal - Output	1	

## HURTH MARINE / ZF IRM 280, 280A

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
322806	3207302077	Overhaul Kit	1	
322905	NL	Master Overhaul Kit	1	
322750B	NL	Module	1	
322715B216	NA	Friction Externally Splined - Sintered	20	.089
322715A173	NA	Friction Externally Splined - 1 side Sintered	4	.072
322707-137	NA	Steel Internally Splined	22	.054

## HURTH MARINE / ZF IRM 301A, 301C

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
322804	3209199512	Overhaul Kit	1	
322903	NA	Master Overhaul Kit	1	
322750A	NA	Module	1	
322711A198	3210303015	Friction Externally Splined - Sintered	18	.081
322705-150	3209303035	Steel Internally Splined - Large	16	.060

## HURTH MARINE Damper Assemblies

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
DA-301	947-77-601-02 254750	121.5mm X 100mm 10/23/29 Teeth DIN 5464, 10 Teeth 45 Degree x 8	1	
DA-302	947-44-601-03 254762	152mm x 123mm 10/23/29 Teeth DIN 5464 w/DOWEL PIN HOLES 45 Degree x 8	1	
DA-303	288240	157mm X 123mm 10/23/29 Teeth DIN 5464, 10 Teeth 72 Degree x 5	1	
DA-304	1866-061-002	6 3/16" x 1 11/32" Diameter, 5 bolt holes, 6 springs, 26 teeth	1	
DA-305	1866-052-002	5.962/151.44 Diameter, 1-1/4" Diameter (spline) 8 Bolt Holes, 6 Springs, 26 Teeth (5.59"/142mm from center to center of bolt holes)	1	

# MARINE CATALOG

ALTO PRODUCTS CORP.

## HURTH MARINE HBW 10, 150

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316803B	500428	GASKET SET Includes Gaskets, Orings and Metal Clad Seals	1	
316903	500438	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316903A	NL	MASTER OVERHAUL KIT - LATE Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316750A	NL	CLUTCH PLATE MODULE Includes 8 Bronze Plates, 6 Steel Plates	1	
316750E	NL	CLUTCH PLATE MODULE - LATE Includes 8 Bronze Plates, 8 Steel Plates	1	
316702	288912	Friction	8	Bronze .063
316703	187872	Steel	6	Flat .056
316703-100	NL	Steel - Thin	8	Flat .039
316002	254715	Gasket	4	
316005	254716	Gasket - Shift Cover	1	
316410	106864	Metal Clad Seal - Lever	1	OD: 26mm ID: 20mm
316403	215875	Metal Clad Seal - Front	1	OD: 52mm ID: 30mm
316404	105159	Metal Clad Seal - Rear	1	OD: 52mm ID: 40mm
3001400	105530	Oring - Intermediate Shaft HBW 150	1	
316188	344787	Thrust Washer	2	

## HURTH MARINE HBW 150V

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316803VB	500429	GASKET SET Includes Gaskets, Orings, Metal Clad Seals, Sealing Rings	1	
316903V	500439	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316903VA	NL	MASTER OVERHAUL KIT - LATE Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316750A	NL	CLUTCH PLATE MODULE Includes 8 Bronze Plates, 6 Steel Plates	1	
316750E	NL	CLUTCH PLATE MODULE - LATE Includes 8 Bronze Plates, 8 Steel Plates	1	
316702	288912	Friction	8	Bronze .063
316703	187872	Steel	6	Flat .056
316703-100	NL	Steel - Thin	8	Flat .039
316002	254715	Gasket	2	
316005	254716	Gasket - Shift Cover	1	
316410	106864	Metal Clad Seal - Lever	1	OD: 26mm ID: 20mm
316403	215875	Metal Clad Seal - Front	1	OD: 52mm ID: 30mm
316406	401647	Metal Clad Seal - Rear	2	OD: 90mm ID: 65mm
A10030B	105590	Oring	1	
A10029A	291618	Oring	2	

## HURTH MARINE HBW 20, 220, 250

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316805B	500430	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals, Sealing Rings	1	
316905	500440	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316750B	NL	CLUTCH PLATE MODULE Includes 10 Bronze Plates, 8 Steel Plates	1	
316704	288889	Friction	10	Bronze .063
316705	206026	Steel	8	Flat .056

# MARINE CATALOG

ALTO PRODUCTS CORP.

## HURTH MARINE HBW 20, 220, 250

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316001	274251	Gasket	4	
316410	106864	Metal Clad Seal - Lever	1	OD: 26mm ID: 20mm
316404	105159	Metal Clad Seal	1	OD: 52mm ID: 40mm
316405	284260	Metal Clad Seal	1	OD: 90mm ID: 65mm
316189	327395 277109	Oring	1	

## HURTH MARINE HBW 5, 50, 100

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316801B	500427	GASKET SET Includes Paper and Rubber Parts Only	1	
316901	500437	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316750	NL	CLUTCH PLATE MODULE Includes 8 Bronze Plates, 6 Steel Plates	1	
316700	288757	Friction	8	Bronze .063
316701	288758	Steel	6	Flat .056
316003	288739	Gasket	4	
316005	254716	Gasket - Shift Cover	1	
316410	106864	Metal Seal - Lever	1	OD: 26mm ID: 20mm
316401	280135	Metal Seal	1	OD: 37mm ID: 27mm
316402	105153	Metal Seal	1	OD: 45mm ID: 32mm
2000950	105524	Oring - Shift Shaft HBW-50	1	
2401230	105679	Oring - Intermediate Shaft HBW-100	1	
316187-396	288748	Thrust Washer (OE Design)	2	
316645		Shim Kit - Bearing (Contains 1 Each Shim)	1	

## HURTH MARINE HSW 450A-2

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
315800	NL	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	
315900	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
315750	NL	CLUTCH PLATE MODULE Includes 8 Bronze Plates, 10 Steel Plates	1	
315700BR	489120	Friction	8	Bronze 1.7mm / .066 OD: 110mm / 4.325 27 Teeth
315701	489119	Steel	10	Wave 1.5mm / .059 ID: 85mm / 3.335 6 Teeth
316004	408388	Gasket - Control Block	1	
315401	374056	Metal Clad Seal - Output Shaft	1	45 x 62 x 8
315402	500065	Metal Clad Seal - Dist. Shaft	1	30 x 43 x 8/9.5
316405	413883	Metal Clad Seal - Input Shaft	1	52 x 35 x 8
1581181	105559	Oring - Output Shaft	1	
316940A	438337	Filter	1	
FK316940	463772	Filter Kit - Includes Filter & 2 Orings	1	

## HURTH MARINE HSW 630 (Hydraulic) & 630 V DRIVE

**HURTH MARINE HSW 630 (Hydraulic) & 630 V DRIVE**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316807B	NL	OVERHAUL KIT - (630 HYDRAULIC) Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	
316807AB	500-423	OVERHAUL KIT - (630 V DRIVE) Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	
316907	NL	MASTER OVERHAUL KIT - (630 HYDRAULIC) Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316907V	NL	MASTER OVERHAUL KIT - (630 V DRIVE) Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316750C	NL	CLUTCH PLATE MODULE - (630 HYD & 630 V DRIVE) Includes 8 Bronze Plates and 10 Steel Plates	1	
316708	97827315013 455-786 813319	Friction	8	Bronze 2.0mm / .079 OD: 134mm / 5.27 36 Teeth
316709	97827314013 455-787 813320	Steel	10	Wave 1.77mm / .067 ID: 96.5mm / 3.8
316004	27-813301 408-388	Gasket - Shift Cover	1	
316405	26-813286 413883	Metal Clad Seal - Input	1	OD: 52mm ID: 35mm
316407	26-813292 442-135	Metal Clad Seal - Output	1	OD: 72mm ID: 55mm
316940A	438337	Filter	1	
FK316940	463772	Filter Kit - Includes Filter & 2 Orings	1	
010614A	25-813406 105-542	Oring - Inner Filter Cover	1	
A10046A	25-813407 442-731	Oring - Outer Filter Cover	1	
A10137B	25-813329 105571	Oring - Output Flange	1	
010611A	101-101	Oring - Control Valve	2	
316102	53-813312 447-038	Sealing Ring - Shaft	3	
316408	444-070	Seal - Output V DRIVE	1	85 x 110 x 12
316409	444-071	Seal - Output V DRIVE	1	65 x 85 x 12

**HURTH MARINE HSW 800 SERIES (Reduction) & V DRIVE**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316807CB	NA	OVERHAUL KIT - (800 REDUCTION) Includes Gaskets, Orings, Metal Clad Seals, Sealing Rings	1	
316807BB	NL	OVERHAUL KIT - (V DRIVE) Includes Gaskets, Orings, Metal Clad Seals, Sealing Rings	1	
316907A	500435	MASTER OVERHAUL KIT - (800 REDUCTION) Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316907AV	NL	MASTER OVERHAUL KIT - (V DRIVE) Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
316750D	NL	CLUTCH PLATE MODULE - (800 REDUCTION AND V DRIVE) Includes 10 Bronze Plates and 12 Steel Plates	1	
316709	97827314013 455-787, 813320	Steel	12	Wave .067
316004	27-813301 408-388	Gasket - Shift Cover	1	
316405	26-813286 413-883	Metal Clad Seal - Input	1	OD: 52mm ID: 35mm

**HURTH MARINE HSW 800 SERIES (Reduction) & V DRIVE**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
316407A	634319104	Metal Clad Seal - Output - REDUCTION	1	OD: 95mm ID: 73mm
316408A	105-113	Seal - Output V DRIVE	1	105 X 130 X 12
316409A	480-762	Seal - Output V DRIVE	1	80 X 100 X 10
316940A	438337	Filter	1	
FK316940	463772	Filter Kit - Includes Filter & 2 Orings		
010614A	25-813406 105-542	Oring - Inner Filter Cover	1	
A10046A	25-813407 442-731	Oring - Outer Filter Cover	1	
A10137B	25-813329 105-571	Oring - Output Flange	1	
010611A	NL	Oring - Control Valve	2	
316102	53-813312 447-038	Sealing Ring - Shaft	3	

**MARINE COUPLINGS  
VELVET DRIVE ®**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023323	4547AY	Coupling 5 - MODEL 10-18 Only	1	
023324	4547BA	Coupling 4 - MODEL 10-17 Only	1	
023327	1000-031-001	Coupling - Current Reduction	1	Fine Spline
023328	4912	Coupling - Early Reduction	1	Fine Spline
023543-075	4BX-A	Coupling Shaft VD71/72 4" X .75 Bore		
023543-087	4BX-AA	Coupling Shaft VD 71/72 4" X .875 Bore		
023543-125	4865DD 4BX-D	Coupling Shaft VD 71/72 4" X 1.25 Bore		
023559-125	4886D 5AX-D	Coupling Shaft VD 71/72 5" X 1.25 Bore		
023559-137	NA	Coupling Shaft VD71/72 5" X 1.375 Bore		
023559-150	NA	Coupling Shaft VD71/72 5" X 1.50 Bore		

**MARINE DAMPER ASSEMBLIES  
HURTH MARINE**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
DA-301	947-77-601-02 254750 1866-050-002	121.5mm X 100mm 10/23/29 Teeth DIN 5464, 10 Teeth		
DA-302	947-44-601-03 254762 1866-052-001	152mm x 123mm 10/23/29 Teeth DIN 5464 w/DOWEL PIN HOLES, 10 Teeth		
DA-303	288240 1866-061-001	157mm X 123mm 10/23/29 Teeth DIN 5464, 10 Teeth		
DA-304	1866-061-002	6 3/16" x 1 11/32" Diameter, 5 bolt holes, 6 springs, 26 teeth		
DA-305	1866-052-002	5.962/151.44 Diameter, 1-1/4" Diameter (spline) 8 Bolt Holes, 6 Springs, 26 Teeth (5.59"/142mm from center to center of bolt holes)		
DA-305	1866-052-002	5.962/151.44 Diameter, 1-1/4" Diameter (spline) 8 Bolt Holes, 6 Springs, 26 Teeth (5.59"/142mm from center to center of bolt holes)		
DA-305	1866-052-002	5.962/151.44 Diameter, 1-1/4" Diameter (spline) 8 Bolt Holes, 6 Springs, 26 Teeth (5.59"/142mm from center to center of bolt holes)		

**MARINE DAMPER ASSEMBLIES  
VELVET DRIVE ®**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
DA-101	1004-650-001	13" x 7/8" Diameter, 8 bolt, 10 springs, 26 Teeth		
DA-101A	1004-650-005	15" X 1 ¼ " Diameter, 14 bolt holes, 10 springs, 26 Teeth		
DA-102	1004-650-002 AS4-K1C BBD3108UL	6.18" OD, 1.353 Spline, Red spring, 26 Teeth		
DA-103	1004-650-003	8.0" OD, 1.35 Spline (8 Equally Spaced Holes), 26 Teeth		
DA-106	1004-650-006 AS4-K2C BBD0107UL	6.66" RAD (Triangle), 1.353 Spline, Red spring, 26 Teeth		
DA-106A	120-8-1446	6.66" RAD Same as DA-106 except w/Cut Off Rounded Ears, 26 Teeth		
DA-107	1004-650-007 AS7-K2C BBD3131UL	13.25" OD Fits Engines up to 430 C.U. 1.353 spline, Purple spring, 26 Teeth		
DA-108	1004-650-008 BBD3132UL	13.25: OD Fits Engines up to 370 C.U., White spring, 26 Teeth		

**VOLVO PENTA**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
DA-302	2301-650-001	152mm x 123mm 10/23/29 Teeth DIN 5464 with Dowel Pin Holes, 45 degree x 8		
DA-203	841894-9 1866-026-131	MD21, MD32 ENG. 287mm x 133mm, 26 Teeth		
DA-204	841892-3 1866-039-001	MD21/RB ENG 267mm x 123mm, 10 Teeth		
DA-206	855389-3 1866-032-231	B21, B21 ENG, 26 Teeth		

**MERCURUISER II-TR, S**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
049700-216	C9AP-7B164SEL B-62691A1-KIT	Friction Forward	1	Fiber .0876
023701	C8AZ-7B442A B-62691A1-KIT	Steel Forward	4	Flat .068
049700	E0AZ-7B164A C9AZ-7B164A B6AZ-7B164R B5AZ-7B164B 3193139 3186574	Friction		Tan PL .061
049700BR	5C-A66A B5AZ-7B164A B6AZ-7B164A	Friction		Bronze .061
049700BR235	NL	Friction		Bronze .093
023738BR	72-A66B	Friction		Bronze .115
023739	72-176	Steel		Flat
023358	809910	Oil Pan for Stern Drive		Black 12mm Plug Thread without Baffle

**PARAGON MODEL HF7 (Direct Drive)**



## PARAGON MODEL HF7 (Direct Drive)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023809EB	Z-7802 Z-7987	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	Combo Fits SN5M-5P & 6A & Later
023909E	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	SN5M-5P
023909F	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	SN6A & Later
023750J	NL	CLUTCH PLATE MODULE Includes 7 Bronze Plates, 8 Steel Plates, 2 Clips and 2 Screws	1	
049700BR	11759	Friction	7-8	Bronze .060
023751	11758	Steel	8-9	Flat .060
023031	12640	Gasket - Front	1	
023032	12227	Gasket - Cover	1	SN5M-5P
023032A	12576	Gasket - Cover	1	SN6A & Later
023036	P11397	Gasket - Reverse-Gear Ring	1	
010256B	10280	Oring - Outer	1	
010223A	11352	Oring - Forward & Rear Coupling	2	
010236B	12221	Oring - Reverse Piston	1	
010116B	12222	Oring - Piston	1	
010028A	11769	Oring - Control Valve	1	
010114B	11779	Oring - Relief Valve	1	
010019B	11683	Oring	2	
023425	11791	Metal Clad Seal - Front Pump	1	
023426	RB446	Metal Clad Seal - Coupling	1	
023110	HF-1094	Sealing Ring - Collar	2	
023099	11573	Washer - Seal	1	
023501	11240	Clip	2	
023502	11237	Lock Screw	2	

## PARAGON MODEL HJ7

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023809BB	Z-7401	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	
023911	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
023750J	NL	CLUTCH PLATE MODULE Includes 7 Bronze Plates, 8 Steel Plates, 2 Clips and 2 Screws	1	
049700BR	11759	Friction	7	Bronze .060
023751	11758	Steel	8	Flat .060
023031	Z-12640	Gasket - Front Housing	1	
023037	Y-11767	Gasket - Cover Housing	1	
010019B	X-11683	Oring	1	
010028A	X-11769	Oring - Control Valve	1	
010114B	X-11779	Oring - Relief Valve	1	
010148B	X-11777	Oring	1	
010223A	X-11352	Oring - Coupling	1	
010256B	X-10280	Oring - Outer	1	
023425	X-11791	Metal Clad Seal - Front	1	
023426	RB446	Metal Clad Seal - Rear	1	
023096	X-11726	Washer - Seal	1	
023097	11176	Washer - Seal	6	
023098	11353	Washer - Seal	6	

# MARINE CATALOG

ALTO PRODUCTS CORP.

## PARAGON MODEL HJ7

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023099	11573	Washer - Seal Detent	1	
023110	HF-1094	Sealing Ring - Oil Dist.	2	
023501	112409	Clip	2	
023502	11237	Lock Screw	2	

## PARAGON MODEL P200, 300, 400

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
049700BR	11759	Friction Forward	6-8	Bronze .060
023751	11758	Steel Forward	7-9	Flat .060

## PARAGON MODEL P41 (SN5M-5P & 6A & LATER)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023809EB	Z-7802 Z-7987	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals & Sealing Rings	1	Combo Fits SN5M-5P & 6A & Later
023909E	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	SN5M-5P
023909F	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	SN6A & Later
023750J	NL	CLUTCH PLATE MODULE Includes 7 Bronze Plates, 8 Steel Plates, 2 Clips and 2 Screws	1	
049700BR	11759	Friction	7-8	Bronze .060
023751	11758	Steel	8-9	Flat .060
023031	12640	Gasket - Front	1	
023032	12227	Gasket - Cover	1	SN5M-5P
023032A	12576	Gasket - Cover	1	SN6A & Later
023036	P11397	Gasket - Reverse-Gear Ring	1	
010256B	10280	Oring - Outer	1	
010223A	11352	Oring - Forward & Rear Coupling	2	
010236B	12221	Oring - Reverse Piston	1	
010116B	12222	Oring - Piston	1	
010028A	11769	Oring - Control Valve	1	
010114B	11779	Oring - Relief Valve	1	
010019B	11683	Oring	2	
023425	11791	Metal Clad Seal - Front Pump	1	
023426	RB446	Metal Clad Seal - Coupling	1	
023110	HF-1094	Sealing Ring - Collar	2	
023099	11573	Washer - Seal	1	
023501	11240	Clip	2	
023502	11237	Lock Screw	2	

## PARAGON MODELS P21, P31, OW1 (SN5M-P)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023809DB	Z-7601	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals and Sealing Rings	1	Combo Fits SN5M-5P & 6A & Later
023909D	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	Combo Fits SN5M-5P & 6A & Later
023750E	KN-10031X	CLUTCH PLATE MODULE Includes 6 Bronze Plates and 7 Steel Plates	1	

# MARINE CATALOG

ALTO PRODUCTS CORP.

## PARAGON MODELS P21, P31, OW1 (SN5M-P)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
049700BR	11759	Friction	6	Bronze .060
023751	11758	Steel	7	Flat .060
023031	12640	Gasket - Front	1	
023032	12227	Gasket - Cover	1	SN5M-5P
023034	11083	Gasket - Rear	1	
010320B	16196	Oring	1	
010256B	10280	Oring - Outer	1	
010223A	11352	Oring - Forward & Rear Coupling	2	
010236B	12221	Oring - Reverse Piston	1	
010116B	12222	Oring - Piston	1	
010028A	11769	Oring - Control Valve	1	
010114B	11779	Oring - Relief Valve	1	
010019B	11683	Oring	2	
023425	11791	Metal Clad Seal - Front Pump	1	
023427	2XE-446A	Metal Clad Seal - Rear	1	
023110	HF-1094	Sealing Ring - Collar	2	
023099	11573	Washer - Seal	1	
023501	11240	Clip	2	
023502	11237	Lock Screw	2	

## PARAGON MODELS P32A-P35B, P22-P25, OW2-OW5 (SN5M-5P & 6A & LATER)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023809	NL	GASKET SET Includes Paper and Rubber Parts Only	1	
023809AB	Z-7988 Z-7603	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals and Sealing Rings	1	Combo Fits SN5M-5P & 6A & Later
023909A	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	Combo Fits SN5M-5P & 6A & Later
023750E		CLUTCH PLATE MODULE  Includes 6 Bronze Plates, 7 Steel Plates, 2 Clips and 2 Screws	1	
049700BR	11759	Friction	6-8	Bronze .060
023751	11758	Steel	7-9	Flat .060
023031	12640	Gasket - Front	1	
023032	12227	Gasket - Cover	1	SN5M-5P
023032A	12576	Gasket - Cover	1	SN6A & Later
023034	11083	Gasket - Rear	1	
023039	RA20-15A	Gasket - Reduction	1	1.5:1 & 2:1 Only
023040	RB20-15A	Gasket - Reduction	1	2.5:1 & 3:1 Only
010256B	10280	Oring - Outer	1	
010223A	11352	Oring - Forward & Rear Coupling	2	
010236B	12221	Oring - Reverse Piston	1	
010116B	12222	Oring - Piston	1	
010028A	11769	Oring - Control Valve	1	
010114B	11779	Oring - Relief Valve	1	
010019B	11683	Oring	2	
023425	11791	Metal Clad Seal - Front Pump	1	
023423	11518	Metal Clad Seal - Coupling	1	
023110	HF-1094	Sealing Ring - Collar	2	
023099	11573	Washer - Seal	1	
023501	11240	Clip	2	

# MARINE CATALOG

ALTO PRODUCTS CORP.

## PARAGON MODELS P32A-P35B, P22-P25, OW2-OW5 (SN5M-5P & 6A & LATER)

023502	11237	Lock Screw	2	
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## PARAGON MODELS P34-P35, P42-P45 (SN5M-5P & 6A & LATER)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023809	NL	GASKET SET Includes Paper and Rubber Parts Only	1	
023809B	Z-7988 Z-7603	OVERHAUL KIT Includes Gaskets, Orings, Metal Clad Seals and Sealing Rings	1	Combo Fits SN5M-5P & 6A & Later
023909	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	Combo Fits SN5M-5P & 6A & Later
023750G	KN-10031	CLUTCH PLATE MODULE Includes 8 Bronze Plates, 9 Steel Plates, 2 Clips and 2 Screws	1	
049700BR	11759	Friction	6-8	Bronze .060
023751	11758	Steel	7-9	Flat .060
023031	12640	Gasket - Front	1	
023032	12227	Gasket - Cover	1	SN5M-5P
023032A	12576	Gasket - Cover	1	SN6A & Later
023034	11083	Gasket - Rear	1	
023039	RA20-15A	Gasket - Reduction	1	1.5:1 & 2:1 Only
023040	RB20-15A	Gasket - Reduction	1	2.5:1 & 3:1 Only
010256B	10280	Oring - Outer	1	
010223A	11352	Oring - Forward & Rear Coupling	2	
010236B	12221	Oring - Reverse Piston	1	
010116B	12222	Oring - Piston	1	
010028A	11769	Oring - Control Valve	1	
010114B	11779	Oring - Relief Valve	1	
010019B	11683	Oring	2	
023425	11791	Metal Clad Seal - Front Pump	1	
023423	11518	Metal Clad Seal - Coupling	1	
023110	HF-1094	Sealing Ring - Collar	2	
023099	11573	Washer - Seal	1	
023501	11240	Clip	2	
023502	11237	Lock Screw	2	

## PRM-NEWAGE Model 175-750

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
326700BR	MT725/S	FR NEWAGE INNER DRIVE PLATE BRONZE	7	Brz Spiral 1.55mm/.061" 24 Teeth

## TWIN DISC (Various)

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
332708	206177M	Friction		
332711-228	215736	Steel - MG-518		Flat .090
332712	206106X	Friction - MG-518		Grn WF .125
332502UP26	B3073C	Drive Block, Rubber - Large (Pack of 26 Pcs.)	26	
332503UP26	A3905E	Drive Block, Rubber - Small (Pack of 26 Pcs.)	26	

# MARINE CATALOG

ALTO PRODUCTS CORP.

## TWIN DISC MG-502

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
332701	B3337	Steel Forward/Reverse	18	52 Teeth Flat .051
332700	B3336A	Friction Forward/Reverse	16	79 Teeth Bronze .085

## TWIN DISC MG-506

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
332703	204097	Steel Forward/Reverse	18	42 Teeth Flat .061
332702	B3060B	Friction Forward/Reverse	16	Bronze .085

## TWIN DISC MG-509-512

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
332705-200	4720762	Steel Forward/Reverse - MG-509 Only 2.mm	14	45 Teeth Flat .079
332704	A-4480A,B,M P-4251A,B,C	Friction Forward/Reverse - MG-509 & MG-512	14	Bronze .112

## TWIN DISC MG-514A, B, C

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
332709	A-6567E	Steel MG-514A, MG-514B - Late		Step .091
332709	A-6567E	Steel MG-514C		Step .091
332706	A-6566E	Friction - All Models	14	Bronze .122

## VELVET DRIVE ® 1500

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
027700	1023-666-003	Friction Forward/Reverse		
027701	1023-166-002	Steel Forward		

## VELVET DRIVE ® 7000

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023748	1026-666-001	Friction Forward/Reverse	15	Fiber .061
023749	1026-166-001	Steel Forward/Reverse	15	Flat .068

## VELVET DRIVE ® S500

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
044701	1023-166-001	Steel Forward/Reverse	7	Flat .071

## VELVET DRIVE® 71 & 72

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023801	10-17-410-002	GASKET SET (Includes Rubber Parts)	1	
023801B	A4867HA	OVERHAUL KIT (Includes Gasket Set )	1	Includes Gasket Set, Metal Clad Seals, Sealing Rings and Rubber Parts
023901LS	NL	BANNER KIT Includes Overhaul Kit and Bronze Plates	1	
023901	NL	MASTER OVERHAUL KIT Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
023750D	NL	CLUTCH PLATE MODULE Includes 10 Bronze Plates and 6 Steel Plates	1	

# MARINE CATALOG

ALTO PRODUCTS CORP.

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023750H	NL	CLUTCH PLATE MODULE - VD71 Only Includes 7 Bronze Plates and 5 Steel Plates	1	
023752D	NL	FRICITION PLATE MODULE Includes 10 Bronze Plates	1	
023755	A4867AE	10-17 FORWARD CLUTCH PACK Only Includes Forward Clutch Bronze Plates, Steel Plates and Front & Rear Pressure Plates	1	
023755A	A4867AB	10-18 FORWARD CLUTCH PACK Only Includes Forward Clutch Bronze Plates, Steel Plates and Front & Rear Pressure Plates	1	
049722	W-1597A	Friction Forward Small K2 (Grooved)	5-7	HEG .063
049700BR	5C-A66A	Friction Forward Small	5-7	Bronze .060
023701	3-176	Steel Forward Small	4-6	Flat .068
023701A	10-16-166-001	Steel Forward Small (3 Teeth missing)	4-6	Flat .068
023701-040	NL	Steel Forward Small - Selective	AR	Flat .040
023701-120	NL	Steel Forward Small - Hi-Performance	AR	Flat .047
023701-140	NL	Steel Forward Small - Hi-Performance	AR	Flat .058
023703	3-65	Steel Forward - MODEL 73 Only		Dish .068
023760	5C-175A	Pressure Plate Forward/ Front	1	
023761	5L-67	Pressure Plate Forward/Rear	1	
023738A	10-17-666-001	Friction Reverse Large	1-3	Fiber .115
023738BR	72-A66B	Friction Reverse Large	1-3	Bronze .115
023738BR155	72-A66	Friction Reverse Large	2	Bronze .061
023739	72-176	Steel Reverse Large	0-2	Flat .070
023767	3-37	Steel Forward Belleville Spring	1	Dish
023323	4547AY	Coupling 5 - MODEL 10-18 Only	1	
023324	4547BA	Coupling 4 - MODEL 10-17 Only	1	
023327	1000-031-001	Coupling - Current Reduction	1	Fine Spline
023328	4912	Coupling - Early Reduction	1	Fine Spline
023543-075	4BX-A	Coupling Shaft VD71/72 4" X .75 Bore		
023543-087	4BX-AA	Coupling Shaft VD 71/72 4" X .875 Bore		
023543-125	4865DD 4BX-D	Coupling Shaft VD 71/72 4" X 1.25 Bore		
023559-125	4886D 5AX-D	Coupling Shaft VD 71/72 5" X 1.25 Bore		
023559-137	NA	Coupling Shaft VD71/72 5" X 1.375 Bore		
023559-150	NA	Coupling Shaft VD71/72 5" X 1.50 Bore		
023020	71-144B	Gasket - Forward/Reverse Adapter	1	
023021	L4-145	Gasket - Front Adapter	1	
023022	71-14	Gasket - Valve Cover	1	
023023	L4-146	Gasket - Rear Adapter	1	
023024	L4-147	Gasket - Rear Retainer - Reduction Early	1	
023025	71-147	Gasket - Rear Retainer - MODEL 10-17	1	
023026	72-147	Gasket - Rear Retainer - MODEL 10-18	1	
023002	3-61	Seal - Front Pump	1	
A38001	4805A	Seal - Reverse Clutch Outer	1	
023054A	5L-36	Seal - Forward Clutch Outer	1	
010210A	4804H	Oring - Control Valve	1	
010226B	5M-122	Oring - Forward Clutch Inner	1	
010226B	5M-122	Oring - Reverse Inner	1	
023941	1000-238-002 72C-98	Filter - Oil	1	
099328	1000-640-004	Neutral Safety Switch	1	
023185	71-79B	Shift Lever	1	
099329	1000-140-004	Switch - Oil Temperature 190°	1	
099329A	87-88031	Switch - Oil Temperature 230°	1	
099329B	1000-140-002	Switch - Oil Temperature 260°	1	
018101	4806B TAW-408	Sealing Ring - Pinion Carrier	4	2.0 x .0935 HJ
038105	4806J TAW-1320	Sealing Ring - Drive Gear	2	1.7465 x .0935 HJ

## VELVET DRIVE® 71 & 72

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023420	1000-044-014 UE-0282E	Metal Clad Seal - Front Pump		OD: 53mm/2.08"
023422	1000-044-017 UH-0049E	Metal Clad Seal - Coupling		OD: 83mm/3.271" Late Type Reduction
023421	71C-110 UH-0341E	Metal Clad Seal - Coupling		OD: 68mm/2.69" Early Type Reduction
023320	1000-149-034	Output Shaft Nut - Coupling Nut with Washer		All Late Reduction Units
023321	4775L	Nut - Ouput Shaft Coupling (Fits 4" & 5" couplings)	1	
023604	NL	Sealing Ring Kit : Contains 4 Pc 018101, 2 Pc. 038105		
023252	4822	Snap Ring - Reverse Gear	1	
023253	R6A-7-1/2	Snap Ring - Drive Gear Large MODEL 10-17 Only	1	
023255	4734	Snap Ring - Drive Gear Small MODEL 10-17 Only	2	
023258	1000-139-048	Snap Ring - Ring Gear Yellow MODEL 10-17	1	.033-.037
023258-130	1000-139-049	Snap Ring - Ring Gear Pink MODEL 10-17	1	.050-.054
023276	71-97	Spring - Reverse Pressure Plate	11	
023350	71C1A60	Oil Pump	1	
023350A	71CA60 1004-508-101	Oil Pump	1	
023359	1017-036-002	Oil Baffle 71C		
023325	B308AGS 1000-130-018	Roller Bearing	1	
023326	6007J	Ball Bearing- Forward	1	
023322	4840D	Needle Bearing - Forward & Reverse Adapter	1	
023351	1017-559-001	Dipstick		
023258A130	4768	Snap Ring - Ring Gear Green MODEL 10-18	2	.050-.054
023247	71-28C (4867VVKIT)	Bushing - Case Housing Forward/Reverse	2	
023248	71-9C (4867DDKIT)	Bushing - Carrier Assembly	2	
023196	71-17	Thrust Washer	1	
023187	1016-193-001	Washer	1	
023188	71-15B	Washer	1	
023189	73C-15	Thrust Washer	1	

## VELVET DRIVE® 71 & 72 "V" Drive

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
023801CB	1308-410-001	OVERHAUL KIT Includes Gasket Set, Orings, Metald Clad Seals and Nut	1	
023027	1308-045-001	Gasket - V DRIVE Housing Up to 1991	1	
023028	1308-045-004	Gasket - V DRIVE Housing 1992-On	1	
023029	1308-045-002	Gasket - V DRIVE Trans	1	
023030	1308-045-003	Gasket	1	
010235B	1000-141-235	Oring - Pre-Load Cap	2	
023420A	OEI	Metal Clad Oil Seal	1	OD: 53mm/2.08"
023421	71C-110	Metal Clad Oil Seal - Output UP to 1989	1	
023422	1000-044-017	Metal Clad Oil Seal - Output 1990-On	1	
023320	1000-149-034	Nut - Output Shaft	1	
023335	1308-410-015	Flange Kit - V DRIVE Conversion Kit	1	
023332	1308-027-005	Flange - Housing	1	
023333	942-1652	Bolt - Flange Housing	6	
023335	1308-410-015 25662	Flange Kit - V DRIVE Conversion Kit HEAVY DUTY	1	

## VELVET DRIVE® 71 & 72 Damper Assemblies

**VELVET DRIVE® 71 & 72 Damper Assemblies**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
DA-101	1004-650-001	13" x 7/8" Diameter, 8 bolt, 10 springs, 26 Teeth	1	
DA-102	1004-650-002 AS4-K1C	6.18" OD, 1.353 Spline, Red spring, 26 Teeth	1	
DA-103	1004-650-003	8.0" OD, 1.35 Spline (8 Equally Spaced Holes), 26 Teeth	1	
DA-106	1004-650-006 AS4-K2C	6.66" RAD (Triangle), 1.353 Spline, Red spring, 26 Teeth	1	
DA-106A	120-8-1446 AS8-K2C	6.66" RAD Same as DA-106 except w/Cut Off Rounded Ears, 26 Teeth	1	
DA-107	1004-650-007 AS7-K2C	13.25" OD Fits Engines up to 430 C.U. 1.353 spline, Purple spring, 26 Teeth	1	
DA-108	1004-650-008 AS5-K2C	13.25: OD Fits Engines up to 370 C.U., White spring, 26 Teeth	1	
DA-302	2301-650-001	157mm X 123mm 10/23/29 Teeth DIN 5464, 10 Teeth 45 Degree x 8	1	
023151A	1013-037-002	Shim	1	.005"
023151B	1013-037-004	Shim	1	.009"
023151C	1308-037-009	Shim	1	.020"

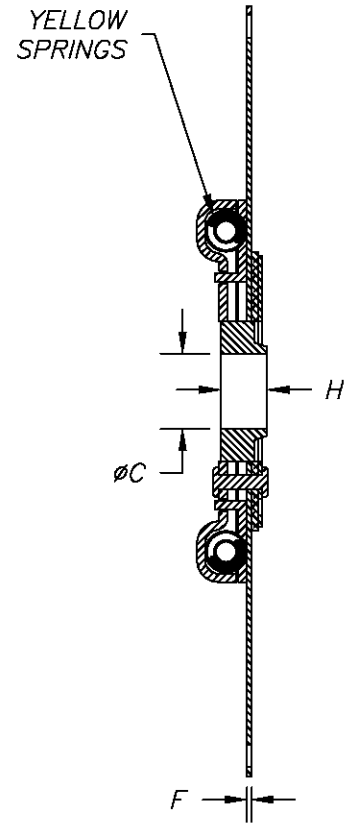
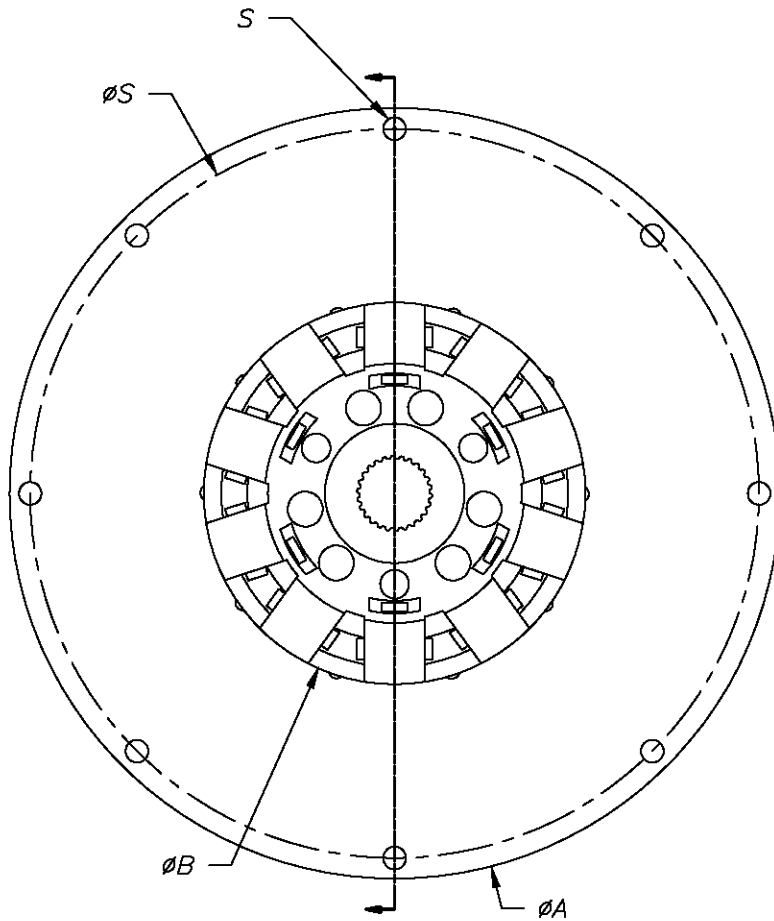
**VELVET DRIVE® S5000, S5000 "V" Drive**

ITEM	REFERENCE	DESCRIPTION	USAGE	NOTES
340800	2001-410-001	OVERHAUL KIT S5000 Includes Gaskets, Orings, Metal Clad Seals and Sealing Rings	1	
340800V	2002-410-001	OVERHAUL KIT S5000 V Drive Includes Gaskets, Orings, Metal Clad Seals and Sealing Rings	1	
340901	NL	MASTER OVERHAUL KIT S5000 Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
340901V	NL	MASTER OVERHAUL KIT S5000 V Drive Includes Overhaul Kit, Bronze Plates and Steel Plates	1	
340750	NL	CLUTCH PLATE MODULE Includes 16 Bronze Plates and 18 Steel Plates	1	
340702	2001-666-001	Friction - Drive	16	Bronze .066
340703	2001-166-002	Steel - Drive	14	Flat .077
340705	2001-062-002	Steel	4	Flat .044
340020	2001-045-005	Gasket - Front Pump S5000 & V Drive	1	
340021	2001-045-003	Gasket - Valve Housing S5000 & V Drive	1	
340021V	2002-045-002	Gasket - Adapter - V Drive	1	
018101	2000-016-050	Sealing Ring - Pinion Carrier	AR	S5000 1Pc,V Drive 4 Pcs
340101	1000-016-021	Sealing Ring - In Shaft	AR	S5000 1Pc,V Drive 2 Pcs
340420	1000-044-065	Metal Clad Seal - Adapter S5000 & V Drive	2	
340421	1000-044-066	Metal Clad Seal - Coupling S5000	1	
340422	2000-044-003	Metal Clad Seal - Output Shaft Side V Drive	1	
340423	2000-044-004	Metal Clad Seal - Output Flange Side V Drive	1	
010045	1000-141-045	Oring - Piston	2	
010123	1000-141-123	Oring - Control Valve	1	
010130B	1000-141-130	Oring - Clutch Piston	2	
010214	1000-141-214	Oring - Tube Assembly	1	
010241	1000-141-241	Oring - Clutch Piston	2	
340051	1000-016-020	Seal - Piston In	2	
340052	1000-016-019	Seal - Piston Out	2	
340251	1000-139-069	Snap Ring	2	
340252	1000-139-071	Snap Ring	1	
340253	1000-139-068	Snap Ring	5	



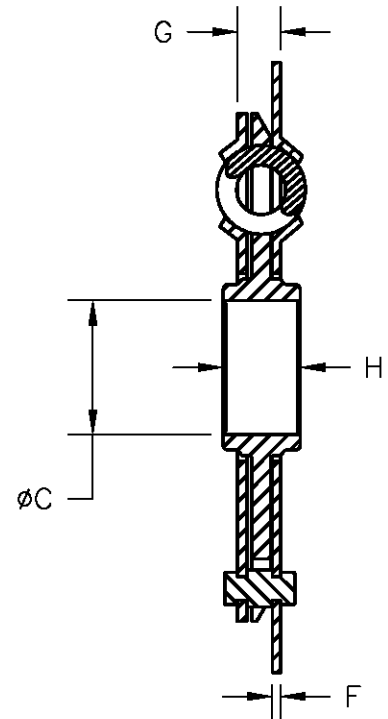
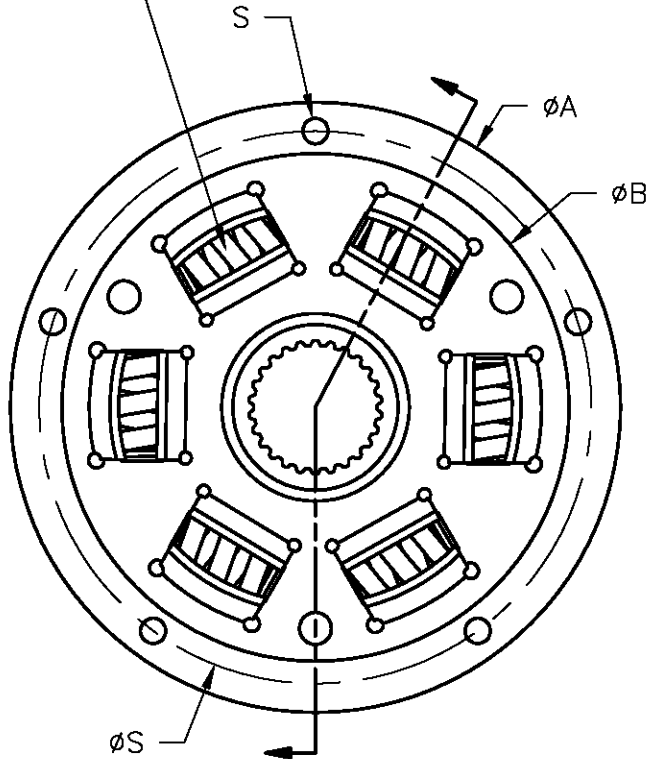
**VELVET DRIVE® S5000, S5000 "V"Drive**

<b>ITEM</b>	<b>REFERENCE</b>	<b>DESCRIPTION</b>	<b>USAGE</b>	<b>NOTES</b>
340151	NL	Washer- Input Shaft	1	Tef. 2.131 x 1.39
340150	NL	Washer- Input Shaft	1	Tef. 2.124 x 1.578
340350	2001-123-9001	Control Valve	1	
099328	1000-640-004	Neutral Safety Switch	1	
023302	NL	Hard Part - Valve Spring with Gertor Oil Pump	1	
023302	NL	Hard Part - Valve Spring with Gertor Oil Pump	1	
340321	2001-031-001	Output Flange	1	
340940	2001-238-001	Filter - Oil Screen	1	



DAMPER INFORMATION						THCK G:	APPLICATION	
TEETH: 26		TORQUE: 350 ft lb 474.536 Nm			THCK H:	DAMPER		
THCK G: N/A		THCK H: 0.840 [21.34]			NOTES: OEM # 1004-650-001			
DIA A: 13.87 [352.30]	HOLE 0.406 [10.31]	HOLE N/A	HOLE N/A	HOLE N/A	OAT: N/A	DRAWN BY: JMS		CHECKED BY: CDH
DIA B: 6.872 [174.55]	HOLE N/A	HOLE N/A	HOLE N/A	HOLE N/A	SCALE: NONE	PART NUMBER		DA-101
DIA C: 1.353 [34.37]	HOLE N/A	HOLE 13.123 [333.32]	HOLE N/A	HOLE N/A	ALTO PRODUCTS CORP.		REV: IR	
DIA D: N/A	HOLE N/A	HOLE N/A	HOLE N/A	HOLE N/A	One Alto Way Atmore, AL 36502-1088 PH: (251)-368-7777 FAX: (251)-368-7774 www.AltoUSA.com			
DIA E: N/A	HOLE N/A	HOLE N/A	HOLE N/A	HOLE N/A	THCK F: 0.084 [2.13]			

ORANGE  
SPRING



### DAMPER INFORMATION

THCK G: 0.440  
[11.18]

### APPLICATION

DAMPER

TEETH: 26

TORQUE: 332 ft lb  
450.131 Nm

THCK H: 0.780  
[19.81]

### NOTES:

OEM # 1004-650-002  
OEM # AS4-K1C

DIA A: 6.18 [156.97]	HOLE DIA S: 0.258 [8.55]	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA B: 5.145 [130.68]	HOLE DIA T: N/A	HOLE DIA Y: N/A	HOLE DIA X: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA C: 1.35 [34.29]	HOLE DIA U: N/A	HOLE DIA S: 5.595 [142.11]	HOLE DIA X: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA D: N/A	HOLE DIA V: N/A	HOLE DIA T: N/A	HOLE DIA Y: N/A	HOLE DIA X: N/A	HOLE DIA Z: N/A
DIA E: N/A	HOLE DIA W: N/A	HOLE DIA U: N/A	HOLE DIA Y: N/A	HOLE DIA X: N/A	THCK F: 0.083 [2.11]

OAT: 0.865  
[21.97]

SCALE: NONE

DRAWN BY:

JMS

CHECKED BY:

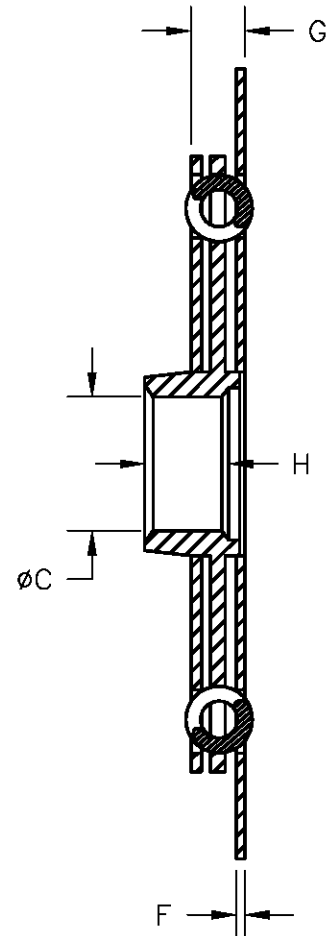
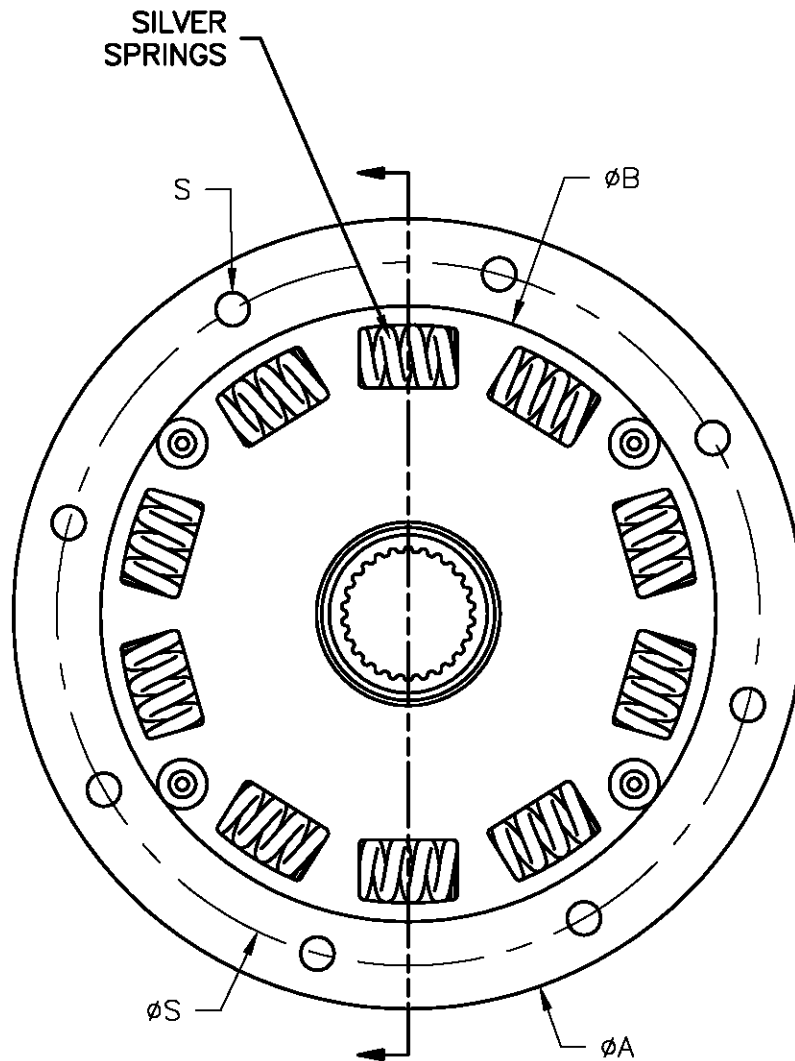
CDH



PART NUMBER

DA-102

REV: IR



### DAMPER INFORMATION

THCK G: 0.540  
[13.72]  
THCK H: 0.780  
[19.81]  
OAT: 1.160  
[29.46]

## APPLICATION

### DAMPER

NOTES:  
OEM # 1004-650-003

SCALE: NONE

DRAWN BY:

**JMS**

CHECKED BY:

**CDH**

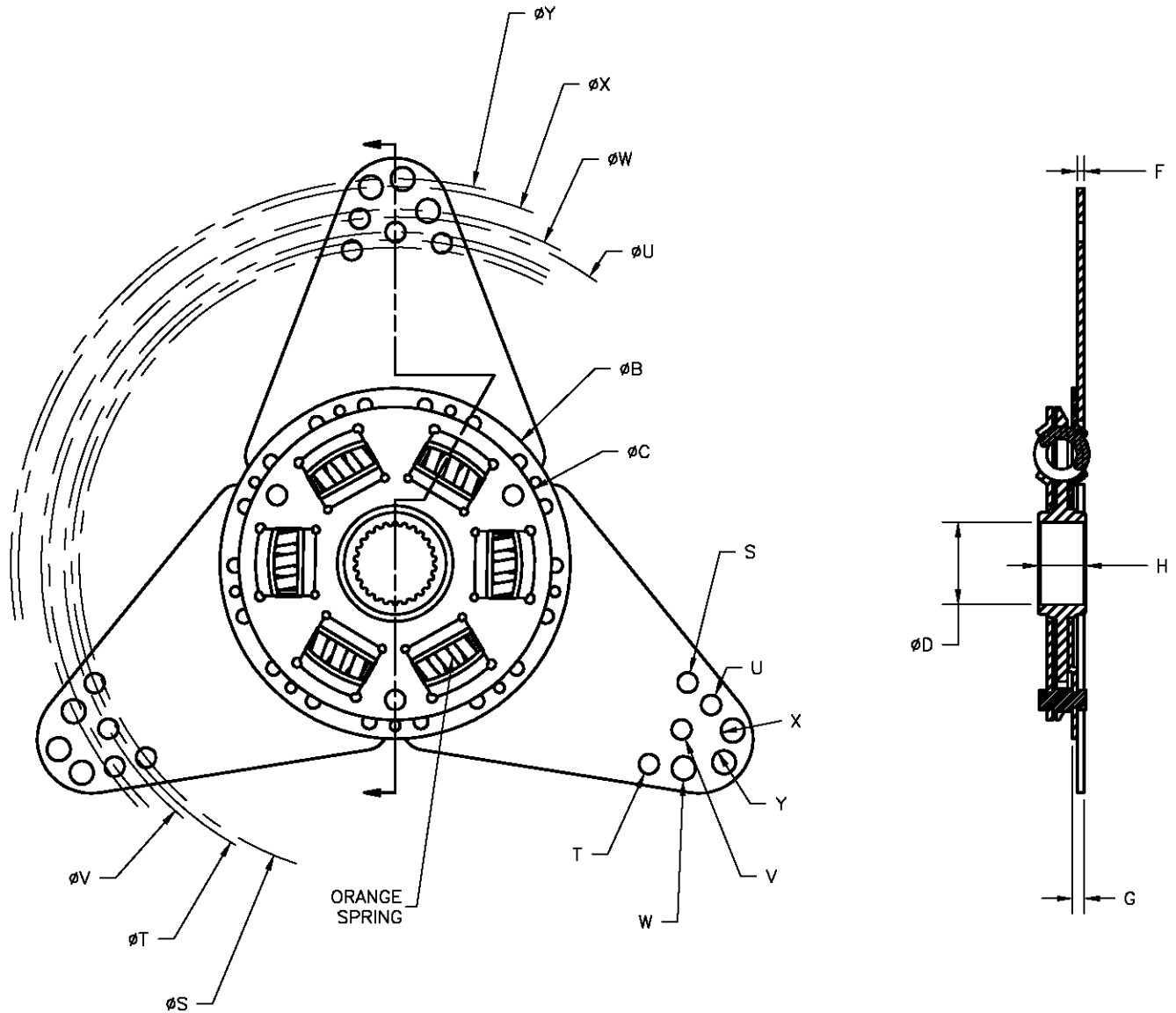
TEETH: 26		TORQUE: 350 ft lb 474.536 Nm			
DIA A: 8.000 [203.20]	HOLE DIA S: 0.340 [8.64]	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA B: 6.235 [158.37]	HOLE DIA T: N/A	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA C: 1.35 [34.29]	HOLE DIA U: N/A	HOLE CEN. S: 7.121 [180.87]	HOLE CEN. T: N/A	HOLE CEN. X: N/A	HOLE CEN. Y: N/A
DIA D: N/A	HOLE DIA V: N/A	HOLE CEN. S: N/A	HOLE CEN. T: N/A	HOLE CEN. X: N/A	HOLE CEN. Y: N/A
DIA E: N/A	HOLE DIA W: N/A	HOLE CEN. S: N/A	HOLE CEN. T: N/A	HOLE CEN. X: N/A	THCK F: 0.083 [2.11]

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PART NUMBER

**DA-103**

REV: IR



### DAMPER INFORMATION

TEETH: 26		TORQUE: 332 ft lb 450.131 Nm		THCK G: 0.193 [4.90]
DIA A: N/A	HOLE 0.326	HOLE 0.387	HOLE 10.875	THCK H: 0.800 [20.32]
N/A	DIA S: [8.28]	DIA X: [9.83]	CEN. V: [276.23]	OAT: 0.975 [24.77]
DIA B: 5.755	HOLE 0.326	HOLE 0.387	HOLE 11.625	SCALE: NONE
[146.18]	DIA T: [8.28]	DIA Y: [9.83]	CEN. W: [295.28]	
DIA C: 5.140	HOLE 0.326	HOLE 10.375	HOLE 12.375	
[130.56]	DIA U: [8.28]	CEN. S: [263.53]	CEN. X: [314.33]	
DIA D: 1.353	HOLE 0.326	HOLE 10.625	HOLE 12.625	
[34.37]	DIA V: [8.28]	CEN. T: [269.88]	CEN. Y: [320.68]	
DIA E: N/A	HOLE 0.387	HOLE 11.375	THCK F: 0.113	
N/A	DIA W: [9.83]	CEN. U: [288.93]	[2.87]	

### APPLICATION DAMPER

NOTES:  
OEM # 1004-650-006  
OEM # AS4-K2C

DRAWN BY: **JMS**

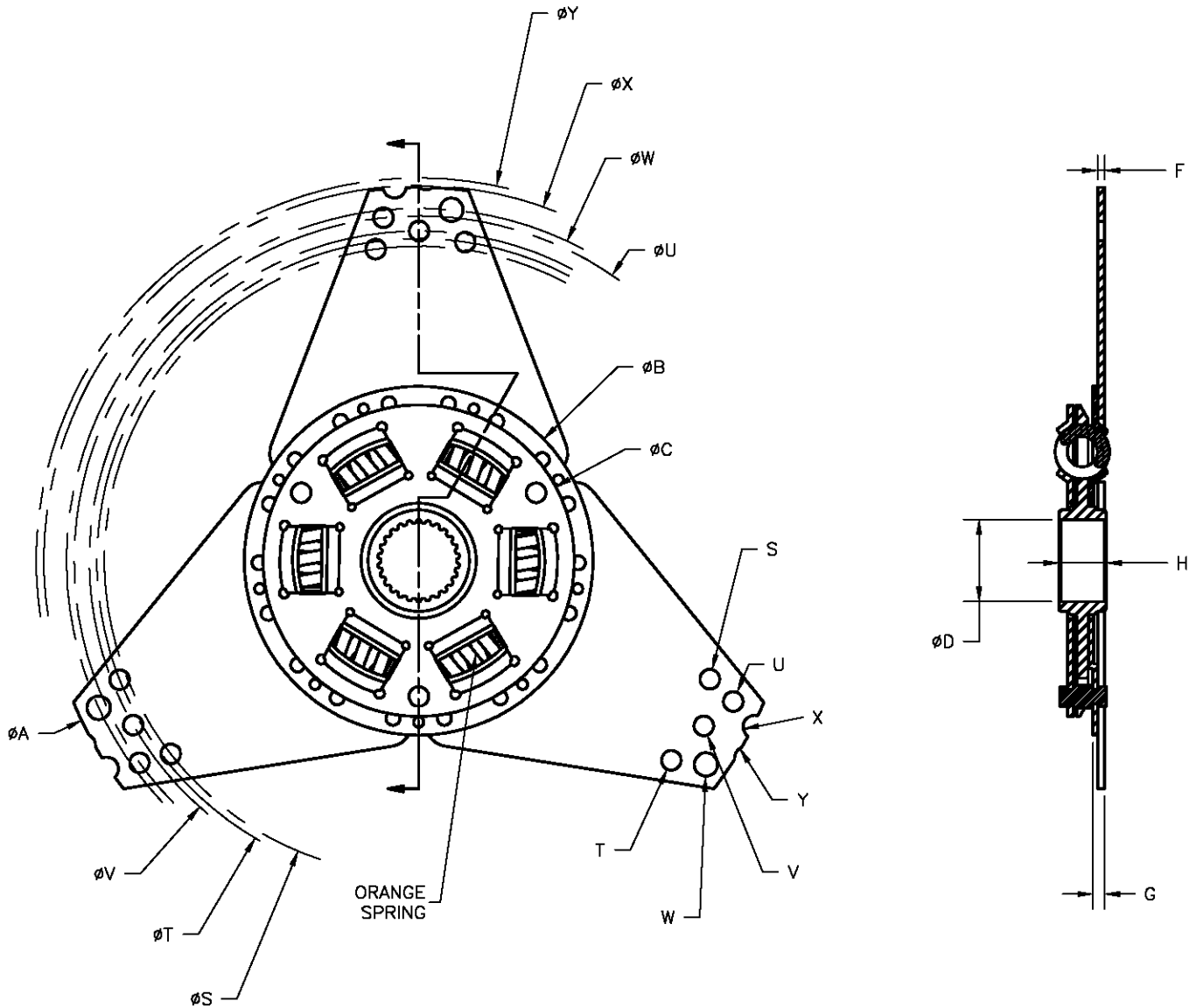
CHECKED BY: **CDH**



PART NUMBER

**DA-106**

REV: IR



### DAMPER INFORMATION

TEETH: 26		TORQUE: 332 ft lb 450.131 Nm		THCK G: 0.193 [4.90]
DIA A: 12.32 [312.93]	HOLE 0.326 DIA S: [8.28]	HOLE 0.387 DIA X: [9.83]	HOLE 10.875 CEN. V: [276.23]	THCK H: 0.800 [20.32]
DIA B: 5.755 [146.18]	HOLE 0.326 DIA T: [8.28]	HOLE 0.387 DIA Y: [9.83]	HOLE 11.625 CEN. W: [295.28]	OAT: 0.975 [24.77]
DIA C: 5.140 [130.56]	HOLE 0.326 DIA U: [8.28]	HOLE 10.375 CEN. S: [263.53]	HOLE 12.375 CEN. X: [314.33]	SCALE: NONE
DIA D: 1.353 [34.37]	HOLE 0.326 DIA V: [8.28]	HOLE 10.625 CEN. T: [269.88]	HOLE 12.625 CEN. Y: [320.68]	
DIA E: N/A	HOLE 0.387 DIA W: [9.83]	HOLE 11.375 CEN. U: [288.93]	THCK F: 0.113 [2.87]	

### APPLICATION DAMPER

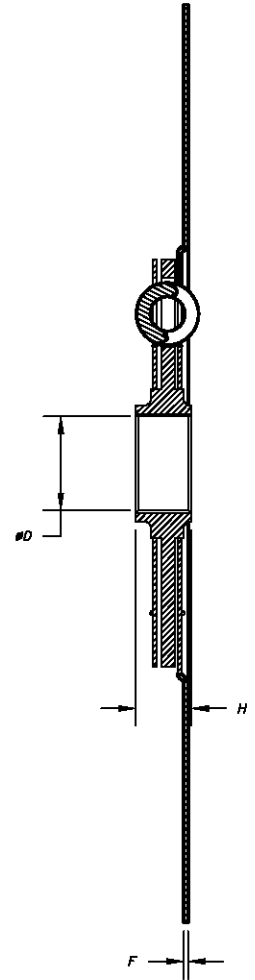
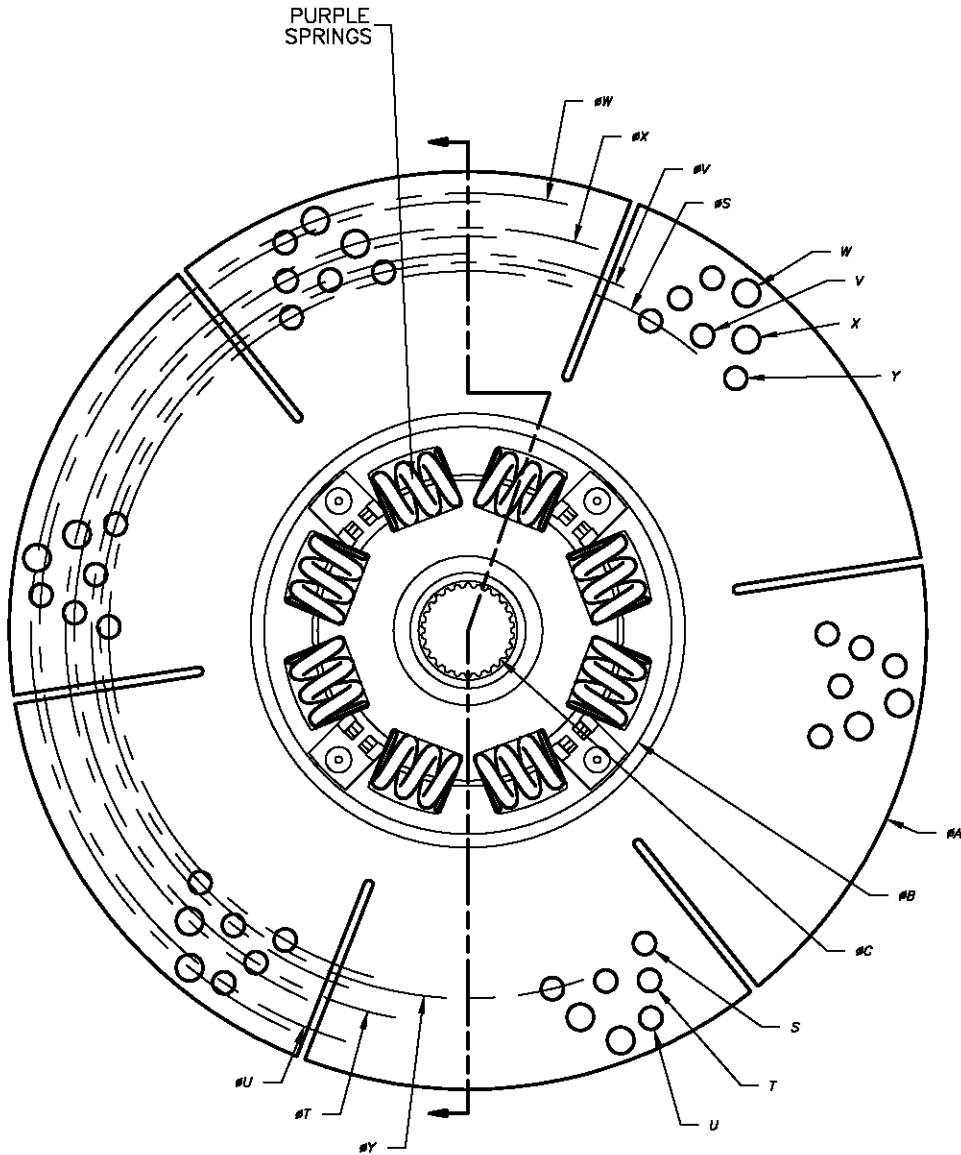
**NOTES:**  
OEM # 120-8-1446  
OEM # AS8-K2C

DRAWN BY: **JMS**

CHECKED BY: **CDH**



PART NUMBER  
**DA-106A**  
REV: IR



### DAMPER INFORMATION

THCK G: N/A  
N/A  
THCK H: 0.800  
[20.32]  
OAT: 0.800  
[20.32]  
SCALE: NONE

### APPLICATION DAMPER

NOTES:  
OEM # 1004-650-007  
OEM # AS7-K2C

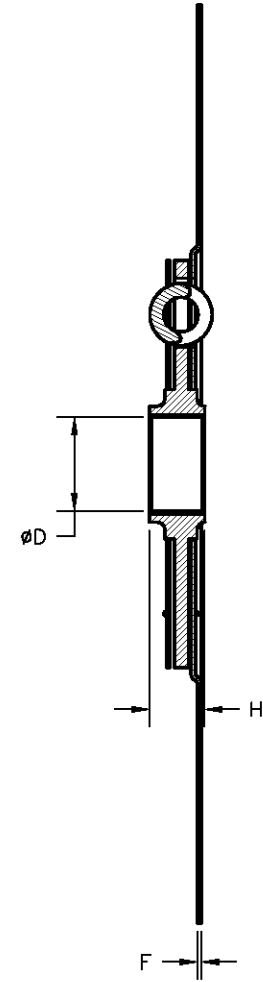
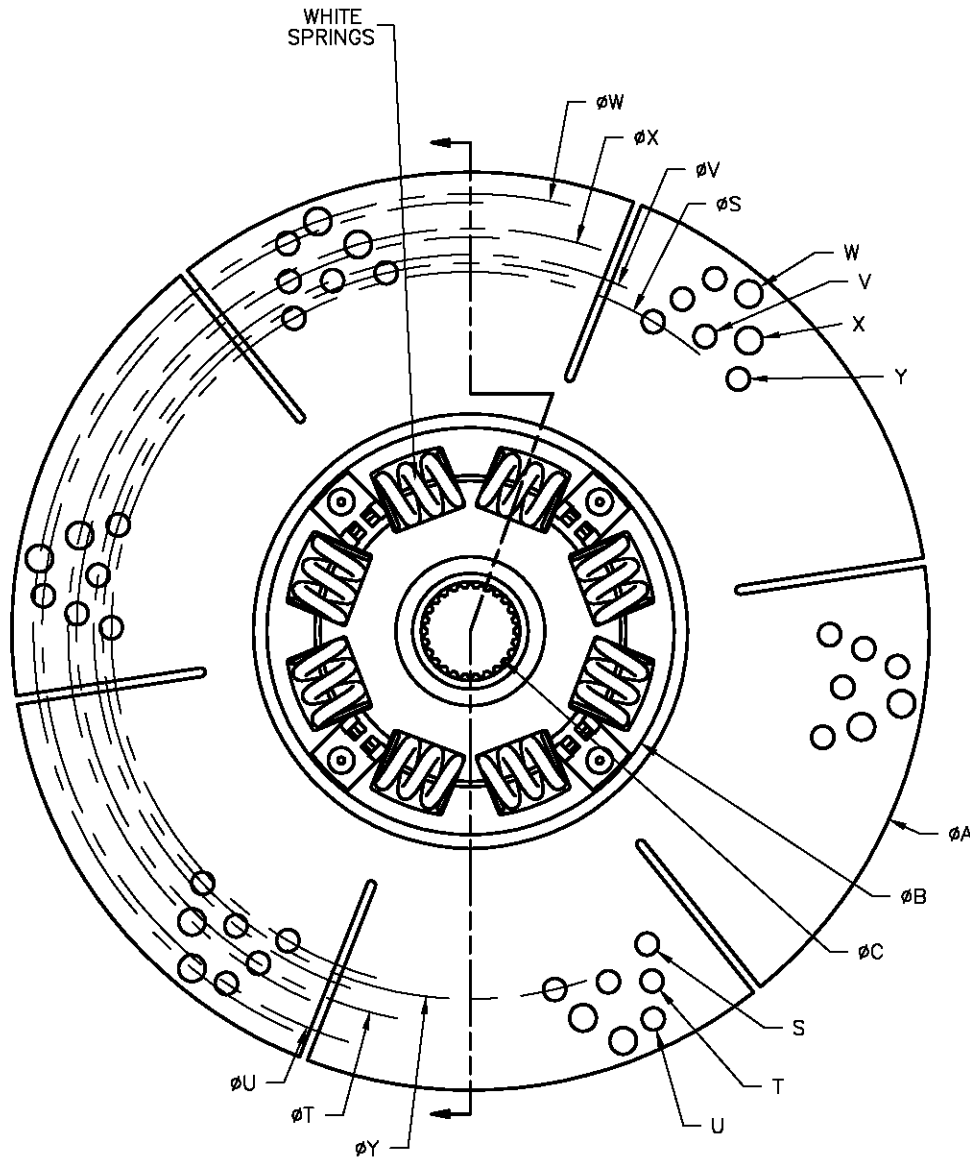
DRAWN BY: **JMS**

CHECKED BY: **CDH**

TEETH:	26		TORQUE: 450 ft lb 610.118 Nm				
DIA A:	13.25 [336.55]	HOLE DIA S:	0.325 [8.25]	HOLE DIA X:	0.388 [9.86]	HOLE CEN. V:	10.875 [276.23]
DIA B:	5.880 [149.35]	HOLE DIA T:	0.325 [8.25]	HOLE DIA Y:	0.326 [8.28]	HOLE CEN. W:	12.625 [320.68]
DIA C:	1.251 [31.78]	HOLE DIA U:	0.326 [8.28]	HOLE CEN. S:	10.375 [263.53]	HOLE CEN. X:	11.625 [295.28]
DIA D:	1.353 [34.37]	HOLE DIA V:	0.325 [8.25]	HOLE CEN. T:	11.375 [288.93]	HOLE CEN. Y:	10.625 [269.88]
DIA E:	N/A	HOLE DIA W:	0.388 [9.86]	HOLE CEN. U:	12.375 [314.33]	THCK F:	0.063 [1.60]

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PART NUMBER  
**DA-107**  
REV: IR



**DAMPER INFORMATION**

THCK G: N/A  
 THCK H: 0.800 [20.32]  
 OAT: NA  
 SCALE: NONE

**APPLICATION**  
 DAMPER

**NOTES:**  
 OEM # 1004-650-008  
 OEM # AS5-K2C

DRAWN BY: **JMS**

CHECKED BY: **CDH**

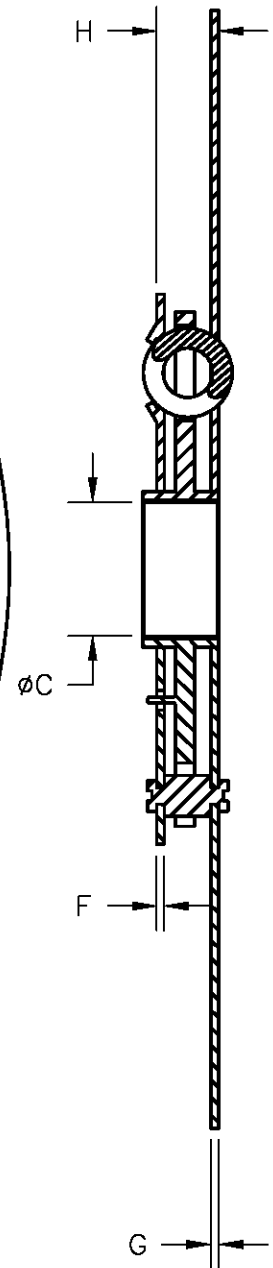
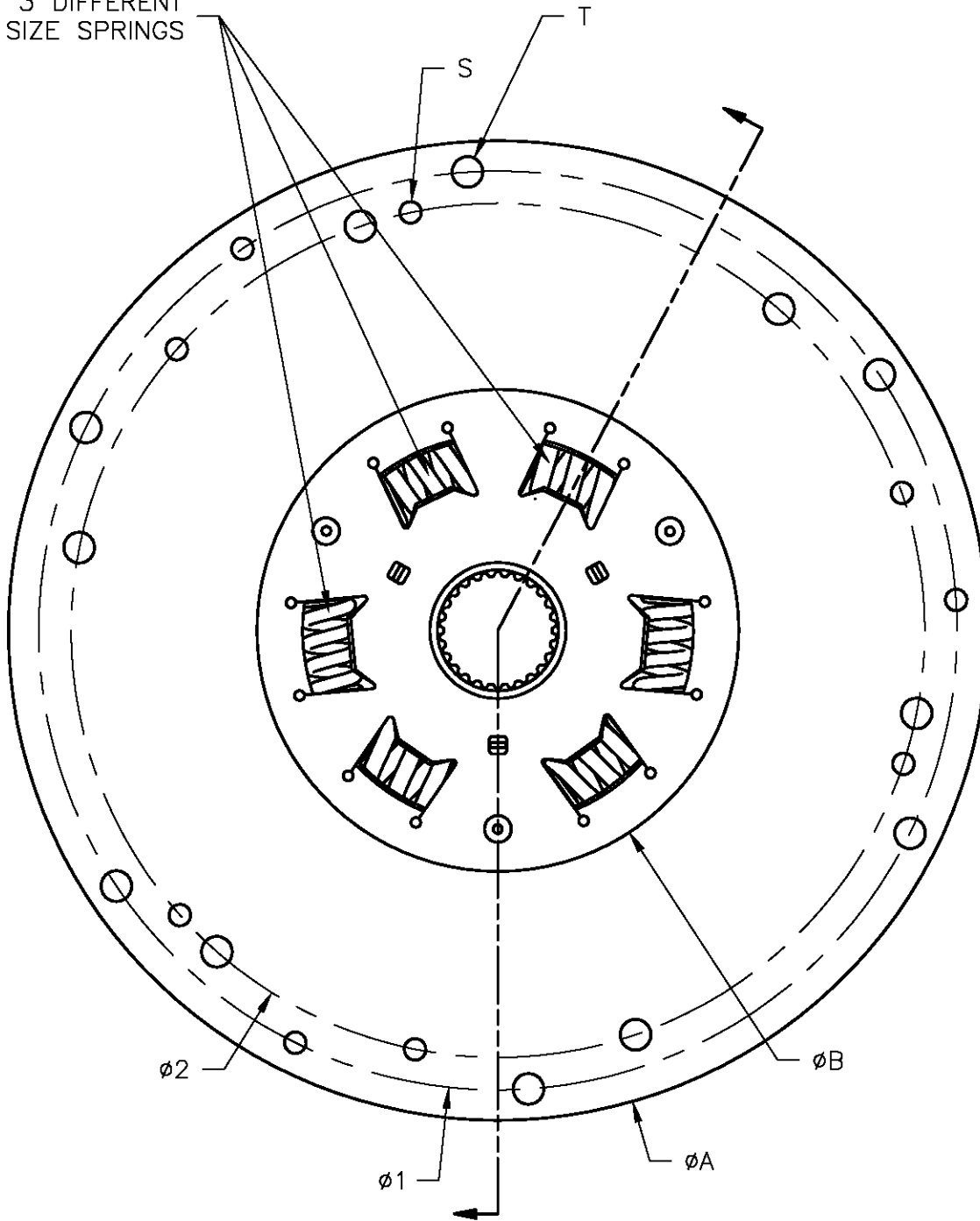
TEETH: 26		TORQUE: 450 ft lb 610.118 Nm	
DIA A: 13.24 [336.55]	HOLE 0.322 [8.18]	HOLE 0.388 [9.86]	HOLE 10.875 [276.23]
DIA B: 5.880 [149.35]	HOLE 0.322 [8.18]	HOLE 0.322 [8.18]	HOLE 12.625 [320.68]
DIA C: 1.251 [31.78]	HOLE 0.322 [8.22]	HOLE 10.375 [263.53]	HOLE 11.625 [295.28]
DIA D: 1.353 [34.37]	HOLE 0.322 [8.18]	HOLE 11.375 [288.93]	HOLE 10.625 [269.88]
DIA E: N/A	HOLE 0.388 [9.86]	HOLE 12.375 [314.33]	THCK F: 0.063 [1.60]



PART NUMBER  
**DA-108**  
 REV: IR



3 DIFFERENT  
SIZE SPRINGS



### DAMPER INFORMATION

THCK G: 0.080  
[2.03]

THCK H: 0.630  
[16.00]

OAT: N/A  
N/A

SCALE: NONE

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### APPLICATION

DAMPER

NOTES:

OEM # 1866-032-231

OEM # 855389-3

DRAWN BY:

JMS

CHECKED BY:

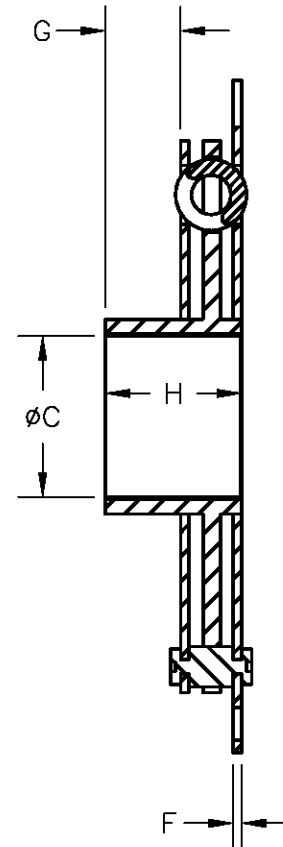
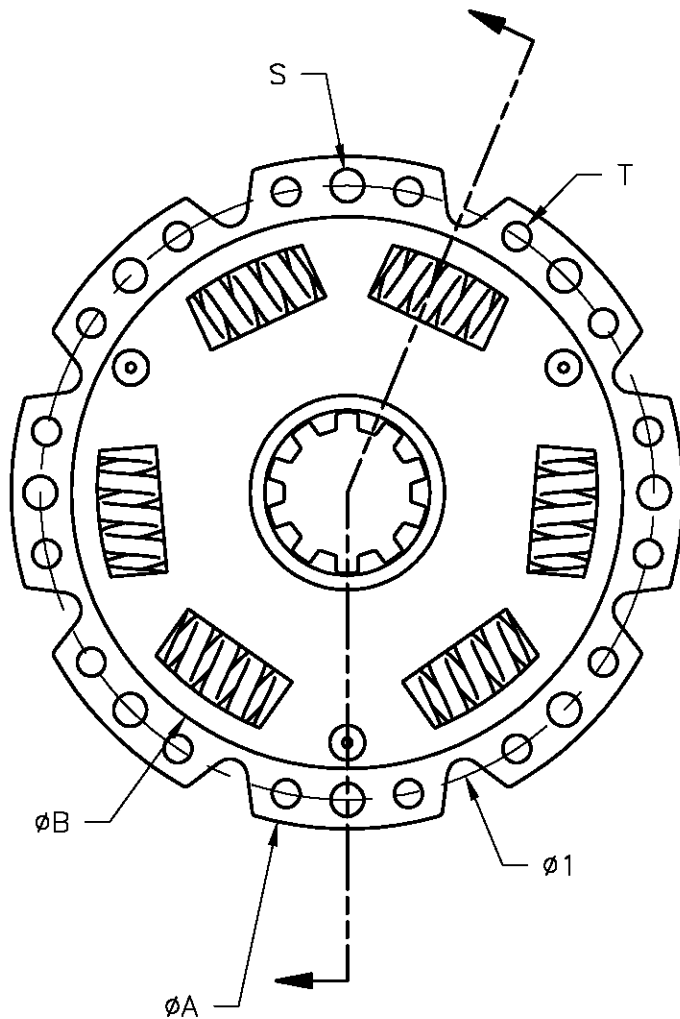
CDH

PART NUMBER

DA-206

REV: IR

TEETH:	26		TORQUE: 313 ft lb 424.371 Nm	
DIA A:	11.315 [287.40]	HOLE DIA S: 0.250 [6.35]	HOLE DIA X: N/A	HOLE CEN. V: N/A
DIA B:	5.567 [141.40]	HOLE DIA T: 0.356 [9.04]	HOLE DIA Y: N/A	HOLE CEN. W: N/A
DIA C:	1.35 [34.29]	HOLE DIA U: N/A	HOLE CEN. 1: 10.615 [269.62]	HOLE CEN. X: N/A
DIA D:	N/A	HOLE DIA V: N/A	HOLE CEN. 2: 9.865 [250.57]	HOLE CEN. Y: N/A
DIA E:	N/A	HOLE DIA W: N/A	HOLE CEN. U: N/A	THCK F: 0.077 [1.96]



### DAMPER INFORMATION

THCK G: 0.512  
[13.00]

## APPLICATION

DAMPER

TEETH: 10

TORQUE: 121.5 ft lb  
164.731 Nm

THCK H: 0.984  
[25.00]

### NOTES:

OEM # 947-77-601-02  
OEM # 254750  
OEM # 1866-050-002

DIA A: 4.783 [121.50]	HOLE DIA S: 0.236 [5.99]	HOLE DIA X: N/A	HOLE CEN. V: N/A	OAT: N/A N/A
DIA B: 3.937 [100.00]	HOLE DIA T: 0.201 [5.11]	HOLE DIA Y: N/A	HOLE CEN. W: N/A	SCALE: NONE
DIA C: 1.141 [29.00]	HOLE DIA U: N/A	HOLE CEN. 1: 4.370 [111.00]	HOLE CEN. X: N/A	DRAWN BY: JMS
DIA D: N/A	HOLE DIA V: N/A	HOLE CEN. T: N/A	HOLE CEN. Y: N/A	CHECKED BY: CDH
DIA E: N/A	HOLE DIA W: N/A	HOLE CEN. U: N/A	THCK F: 0.060 [1.52]	PART NUMBER DA-301

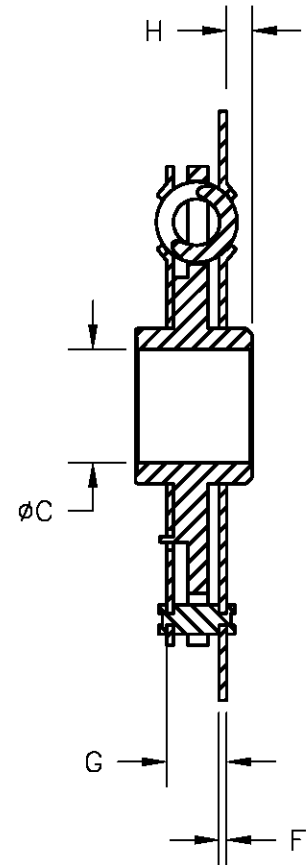
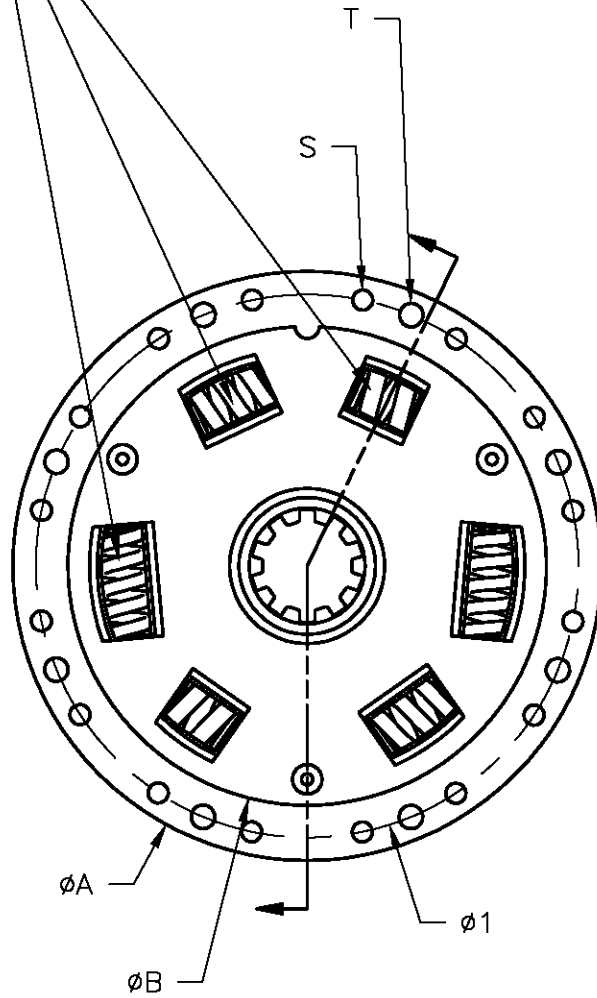
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PART NUMBER

DA-301

REV: IR

3 DIFFERENT  
SIZE SPRINGS



### DAMPER INFORMATION

THCK G: 0.595  
[15.11]

## APPLICATION

DAMPER

TEETH: 10

TORQUE: 147.5 ft lb  
199.983 Nm

THCK H: 0.257  
[6.53]

### NOTES:

OEM # 947-44-601-03  
OEM # 254762  
OEM # 1866-052-001

OAT: 1.181  
[30.00]

SCALE: NONE

DRAWN BY:

JMS

CHECKED BY:

CDH

DIA A:	5.965 [151.51]	HOLE DIA S:	0.201 [5.11]	HOLE DIA X:	N/A	HOLE CEN. V:	N/A
DIA B:	4.843 [123.00]	HOLE DIA T:	0.236 [5.99]	HOLE DIA Y:	N/A	HOLE CEN. W:	N/A
DIA C:	1.145 [29.08]	HOLE DIA U:	N/A	HOLE CEN. 1:	5.512 [140.00]	HOLE CEN. X:	N/A
DIA D:	N/A	HOLE DIA V:	N/A	HOLE CEN. T:	N/A	HOLE CEN. Y:	N/A
DIA E:	N/A	HOLE DIA W:	N/A	HOLE CEN. U:	N/A	THCK F:	0.079 [2.01]

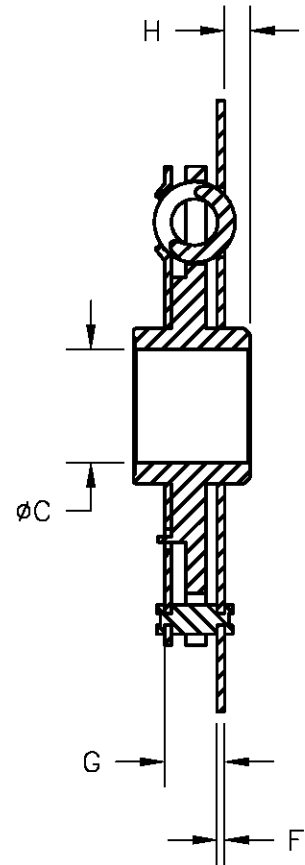
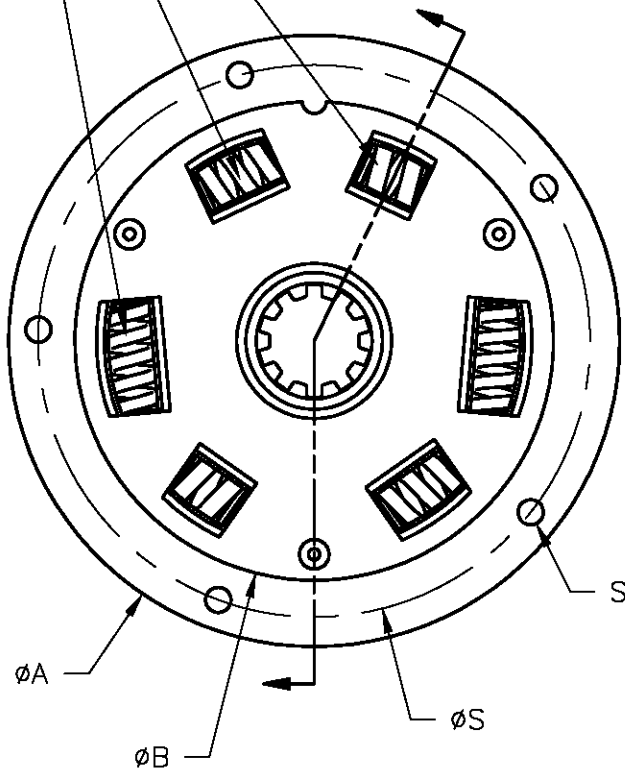
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PART NUMBER

**DA-302**

REV: IR

3 DIFFERENT  
SIZE SPRINGS



### DAMPER INFORMATION

THCK G: 0.565  
[14.35]

### APPLICATION DAMPER

TEETH: 10

TORQUE: 184.2 ft lb  
249.741 Nm

THCK H: 0.257  
[6.53]

NOTES:  
OEM # 288240  
OEM # 1866-061-001

DIA A: 6.189 [157.20]	HOLE DIA S: 0.257 [6.53]	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA B: 4.848 [123.14]	HOLE DIA T: N/A	HOLE DIA Y: N/A	HOLE DIA X: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA C: 1.145 [29.08]	HOLE DIA U: N/A	HOLE DIA S: 5.593 [142.06]	HOLE DIA X: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA D: N/A	HOLE DIA V: N/A	HOLE DIA T: N/A	HOLE DIA Y: N/A	HOLE DIA X: N/A	HOLE DIA Z: N/A
DIA E: N/A	HOLE DIA W: N/A	HOLE DIA U: N/A	HOLE DIA X: N/A	HOLE DIA Y: N/A	THCK F: 0.079 [2.01]

OAT: 1.181  
[30.00]

SCALE: NONE

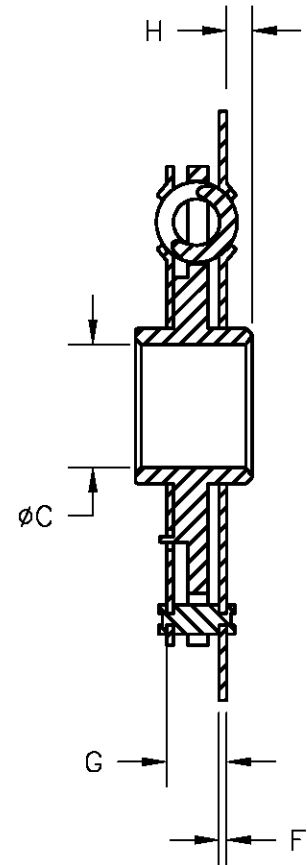
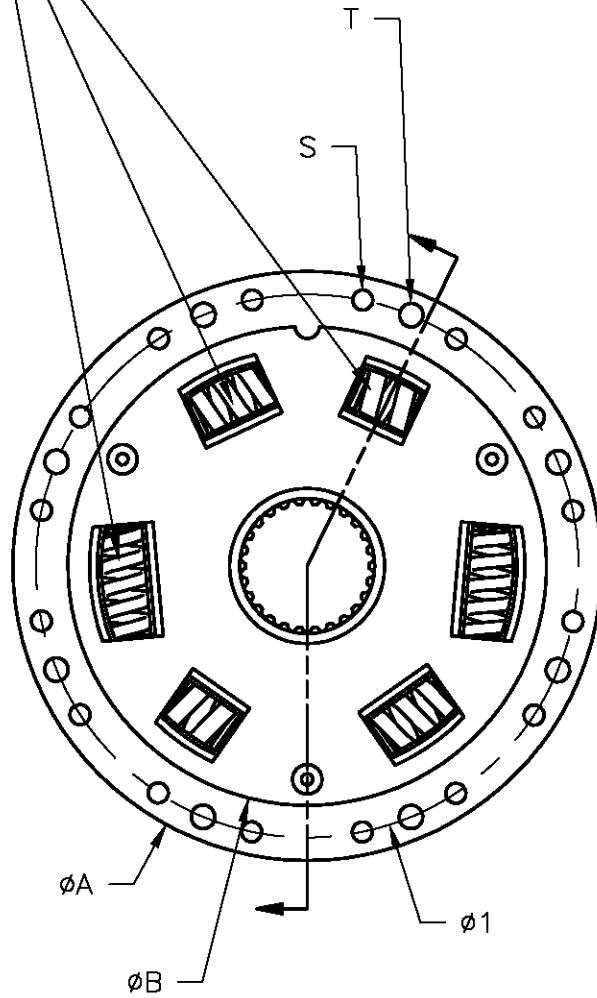
DRAWN BY: **JMS**

CHECKED BY: **CDH**



PART NUMBER  
**DA-303**  
REV: IR

3 DIFFERENT  
SIZE SPRINGS



### DAMPER INFORMATION

THCK G: 0.550  
[13.97]

TEETH: 26

TORQUE: 221.27 ft lb  
300 Nm

THCK H: 0.260  
[6.60]

OAT: 1.175  
[29.84]

SCALE: NONE

## APPLICATION DAMPER

NOTES:  
OEM #1866-052-002

DRAWN BY:

**BTB**

CHECKED BY:

**CDH**

DIA A:	5.962 [151.44]	HOLE DIA S:	0.205 [5.20]	HOLE DIA X:	N/A	HOLE CEN. V:	N/A
DIA B:	4.853 [123.26]	HOLE DIA T:	0.240 [6.096]	HOLE DIA Y:	N/A	HOLE CEN. W:	N/A
DIA C:	1.250 [31.75]	HOLE DIA U:	N/A	HOLE CEN. 1:	1.353 [34.36]	HOLE CEN. X:	N/A
DIA D:	N/A	HOLE DIA V:	N/A	HOLE CEN. T:	N/A	HOLE CEN. Y:	N/A
DIA E:	N/A	HOLE DIA W:	N/A	HOLE CEN. U:	N/A	THCK F:	0.075 [1.90]

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PART NUMBER

**DA-305**

REV: IR

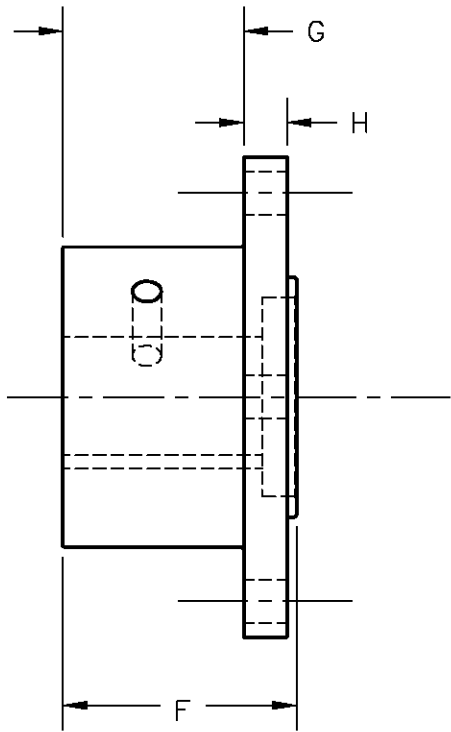
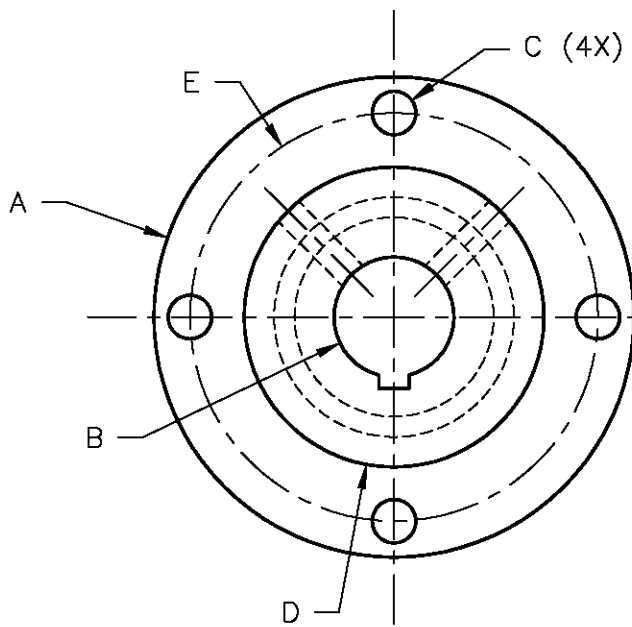
## MARINE COUPLINGS

### VELVET DRIVE ®

ALTO NO.	OEM NO.	DESCRIPTION	USAGE	NOTES
<b>COUPLINGS</b>				
023323	4547AY	Coupling 5 - MODEL 10-18 Only	1	
023324	4547BA	Coupling 4 - MODEL 10-17 Only	1	
023327	1000-031-001	Coupling - Current Reduction	1	Fine Spline
023328	4912	Coupling - Early Reduction	1	Fine Spline
023543-075	4BX-A	Coupling Shaft VD71/72 4" X .75 Bore		
023543-087	4BX-AA	Coupling Shaft VD 71/72 4" X .875 Bore		
023543-100	1866-052-002	Coupling Shaft VD71/72 4" X 1.00 Bore		
023543-125	4865DD 4BX-D	Coupling Shaft VD 71/72 4" X 1.25 Bore		
023559-125	4886D 5AX-D	Coupling Shaft VD 71/72 5" X 1.25 Bore		
023559-137	NA	Coupling Shaft VD71/72 5" X 1.375 Bore		
023559-150	NA	Coupling Shaft VD71/72 5" X 1.50 Bore		

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**SEE COUPLING SPEC SHEET NEXT PAGE.....**



### COUPLING INFORMATION

PART NUM.	DIM: A	DIM: B	DIM: C	DIM: D	DIM: E	DIM: F	DIM: G	DIM: H
023559-125	5.00"	1.250"	0.455"	3.125"	4.250"	2.435"	1.885"	0.450"
023559-137	5.00"	1.375"	0.455"	3.125"	4.250"	2.435"	1.885"	0.450"
023559-150	5.00"	1.500"	0.455"	3.125"	4.250"	2.435"	1.885"	0.450"
023543-075	4.00"	0.750"	0.392"	2.250"	3.250"	2.330"	1.845"	0.385"
023543-087	4.00"	0.875"	0.392"	2.250"	3.250"	2.330"	1.845"	0.385"
023543-100	4.00"	1.000"	0.392"	2.250"	3.250"	2.330"	1.845"	0.385"
023543-125	4.00"	1.250"	0.392"	2.250"	3.250"	2.330"	1.845"	0.385"

### APPLICATION

CPL SHAFT VD71/72

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DRAWN: JMS

CHECKED: CDH

SCALE: 1:2

DATE: 7/8/13