

ALTO MARINE DAMPERS

Borg Warner Velvet Drive

DA-101

Application	OEM
DAMPER BW VELVET DRIVE MARINE	1004-650-001



DA-102

Application	OEM
DAMPER BW VELVET DRIVE MARINE	1004-650-002



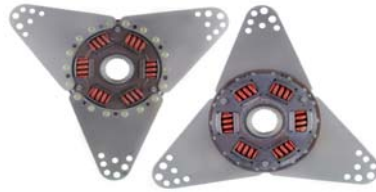
DA-103

Application	OEM
DAMPER BW VELVET DRIVE MARINE	1004-650-003



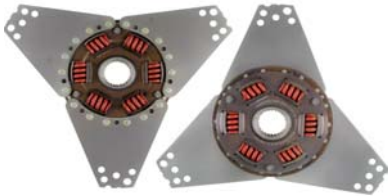
DA-106

Application	OEM
DAMPER BW VELVET DRIVE MARINE	1004-650-006



DA-106A

Application	OEM
DAMPER BW VELVET DRIVE MARINE	AS8-K2C



DA-107

Application	OEM
DAMPER BW VELVET DRIVE MARINE (Purple Spring)	1004-650-007



DA-108

Application	OEM
DAMPER BW VELVET DRIVE MARINE (White Spring)	1004-650-008

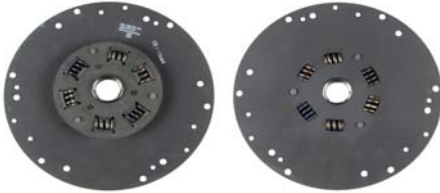


ALTO MARINE DAMPERS

Volvo Penta

DA-206

Application	OEM
DAMPER VOLVO PENTA MARINE	855389-3



Hurth Marine

DA-301

Application	OEM
DAMPER HURTH MARINE	254750



DA-302

Application	OEM
DAMPER HURTH MARINE	254762



DA-303

Application	OEM
DAMPER HURTH MARINE	288240



DA-304

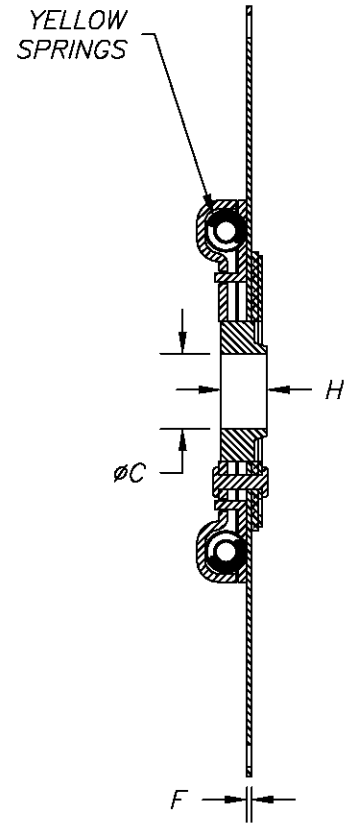
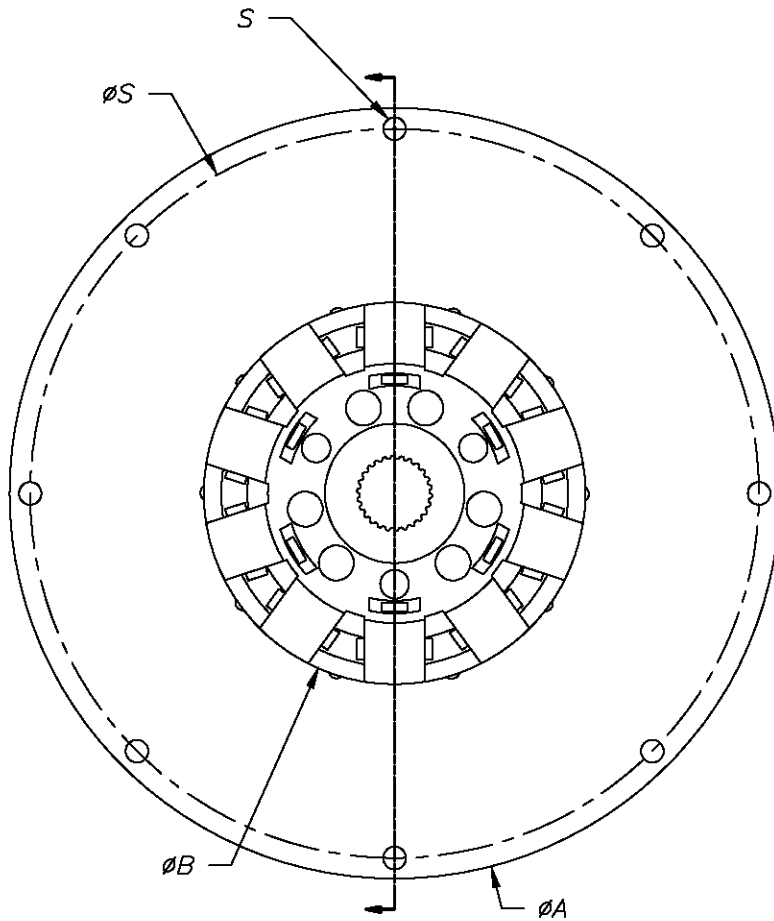
Application	OEM
DAMPER HURTH MARINE	1866-061-002



DA-305

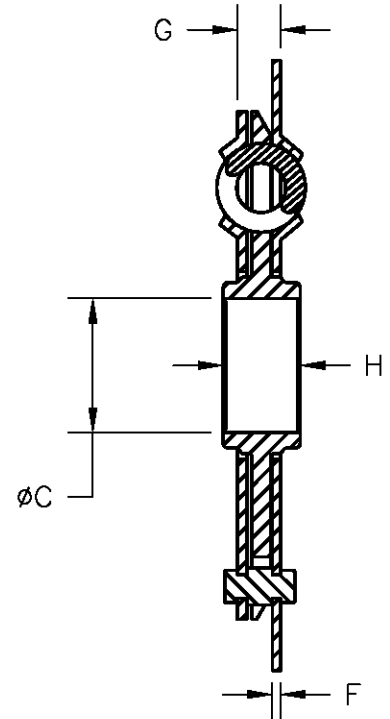
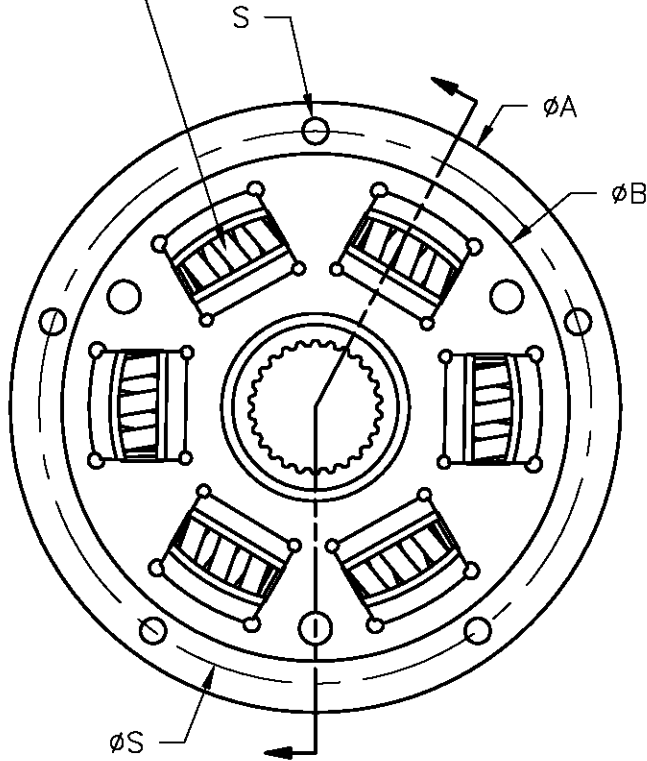
Application	OEM
DAMPER HURTH MARINE	1866-052-002





DAMPER INFORMATION						THCK G:	APPLICATION		
TEETH: 26		TORQUE: 350 ft lb 474.536 Nm			THCK H:	DAMPER			
THCK G: N/A 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 DIA X: N/A	HOLE N/A DIA Y: N/A	HOLE N/A CEN. V: N/A	OAT: N/A N/A	SCALE: NONE		DRAWN BY: JMS	CHECKED BY: CDH
DIA B: 6.872 [174.55]	HOLE N/A DIA T: N/A	HOLE N/A DIA Y: N/A	HOLE 13.123 CEN. S: [333.32]	HOLE N/A CEN. X: N/A	ALTO PRODUCTS CORP.		PART NUMBER		
DIA C: 1.353 [34.37]	HOLE N/A DIA U: N/A	HOLE N/A DIA V: N/A	HOLE N/A CEN. T: N/A	HOLE N/A CEN. Y: N/A	One Alto Way Atmore, AL 36502-1088 PH: (251)-368-7777 FAX: (251)-368-7774 www.AltoUSA.com		DA-101		
DIA D: N/A	HOLE N/A DIA V: N/A	HOLE N/A DIA W: N/A	HOLE N/A CEN. U: N/A	THCK F: 0.084 [2.13]	MADE IN USA		REV: IR		

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 Z: N/A	HOLE DIA W: N/A
DIA E: N/A	HOLE DIA W: N/A	HOLE DIA U: N/A	HOLE DIA X: N/A	THCK F: 0.083 [2.11]	

OAT: 0.865
[21.97]

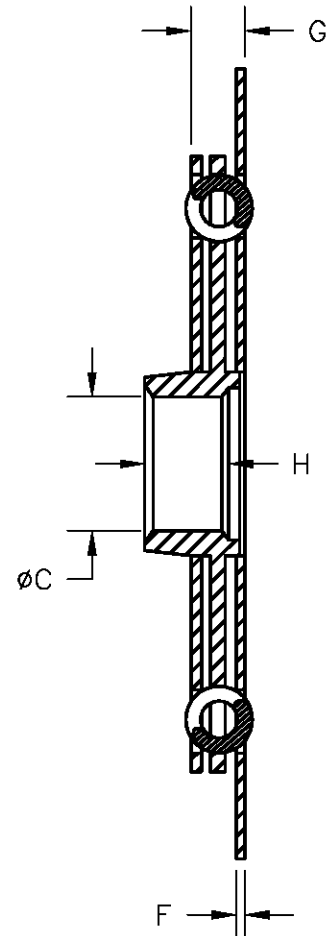
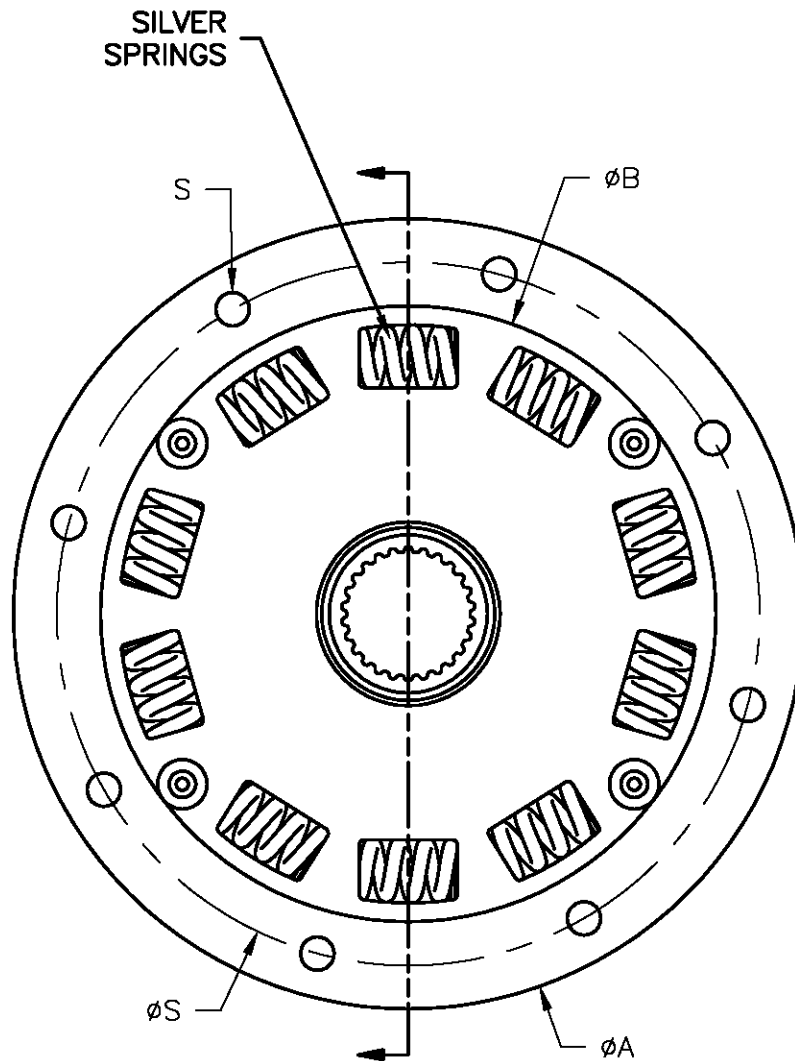
SCALE: NONE

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

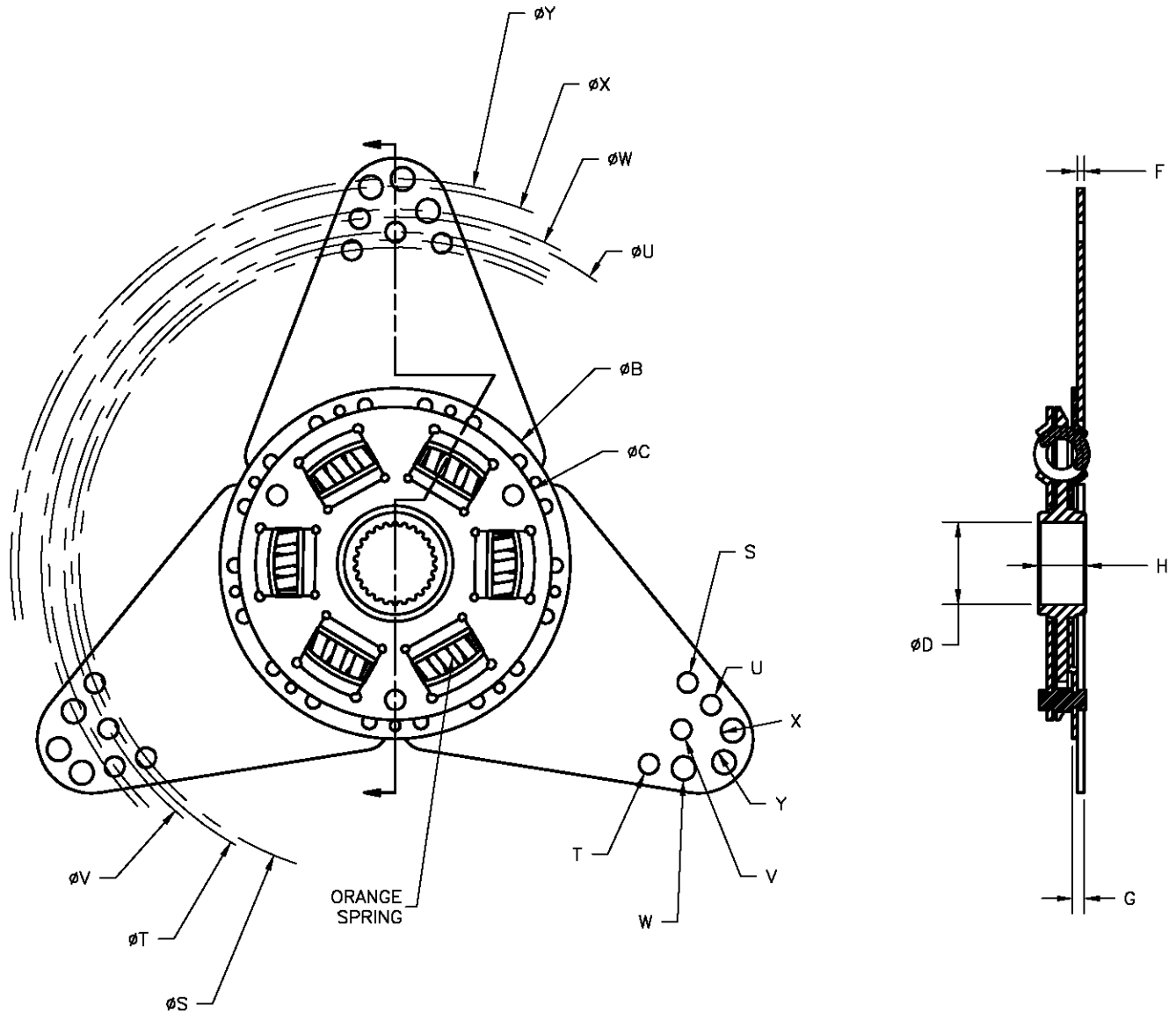
TEETH:	26		TORQUE: 350 ft lb 474.536 Nm	
DIA A:	8.000 [203.20]	HOLE DIA S: 0.340 [8.64]	HOLE DIA X: N/A	HOLE CEN. V: N/A
DIA B:	6.235 [158.37]	HOLE DIA T: N/A	HOLE DIA Y: N/A	HOLE CEN. W: N/A
DIA C:	1.35 [34.29]	HOLE DIA U: N/A	HOLE CEN. S: 7.121 [180.87]	HOLE CEN. X: N/A
DIA D:	N/A	HOLE DIA V: N/A	HOLE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

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PART NUMBER

DA-103

REV: IR



DAMPER INFORMATION

TEETH: 26		TORQUE: 332 ft lb 450.131 Nm	
DIA A: N/A	HOLE 0.326	HOLE 0.387	HOLE 10.875
N/A	DIA S: [8.28]	DIA X: [9.83]	CEN. V: [276.23]
DIA B: 5.755	HOLE 0.326	HOLE 0.387	HOLE 11.625
[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]

THCK G: 0.193 [4.90]
THCK H: 0.800 [20.32]
OAT: 0.975 [24.77]
SCALE: NONE

APPLICATION DAMPER

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

DRAWN BY: **JMS**

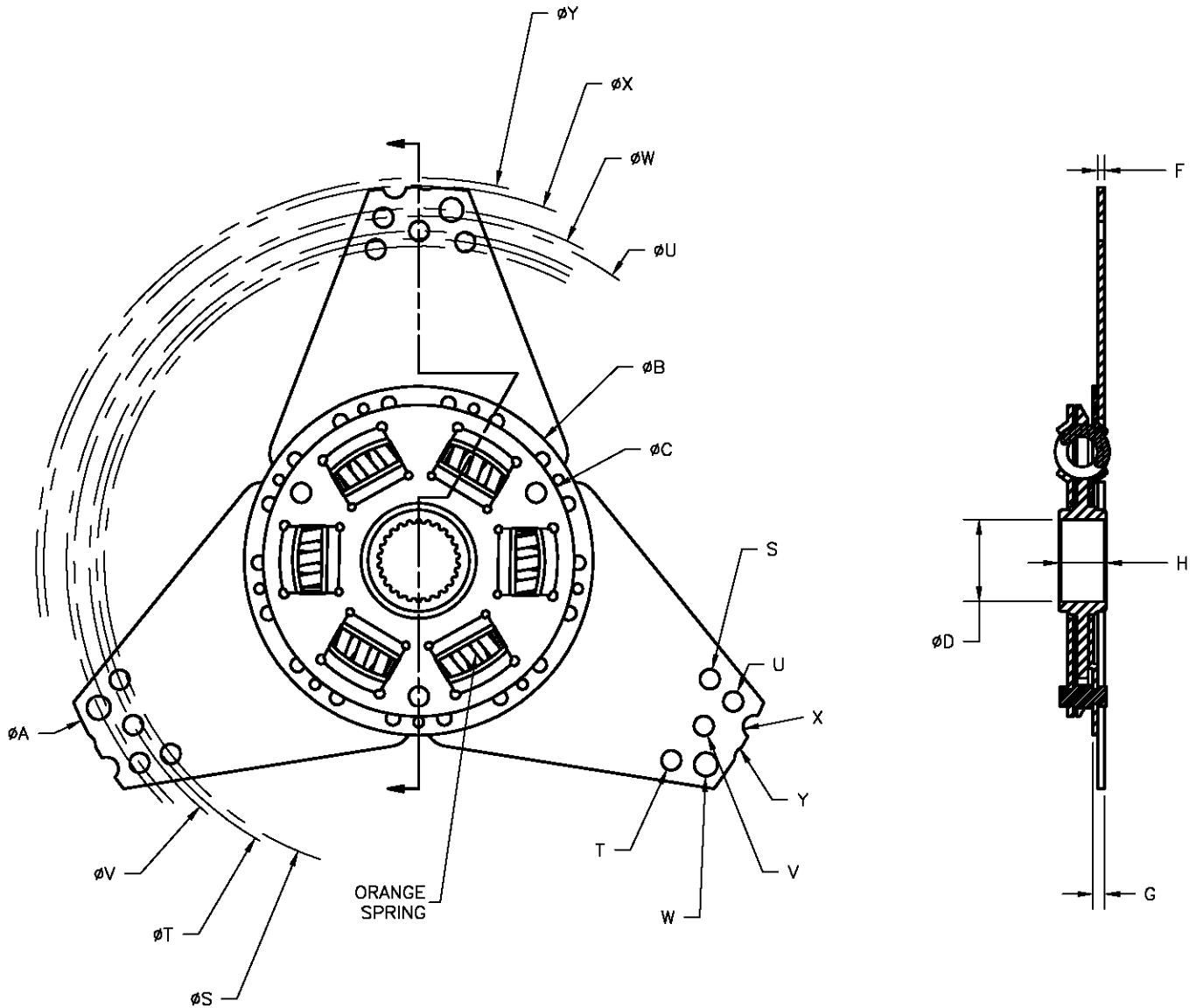
CHECKED BY: **CDH**



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

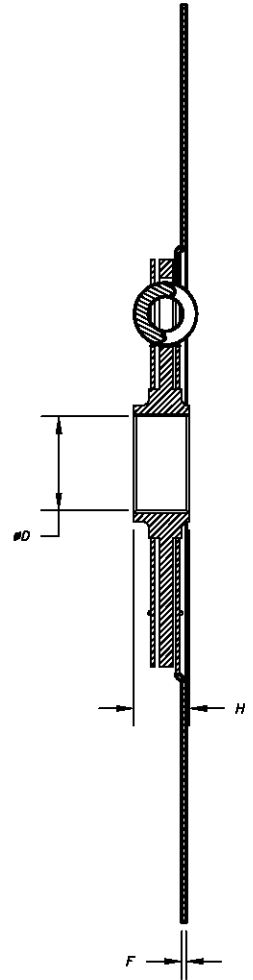
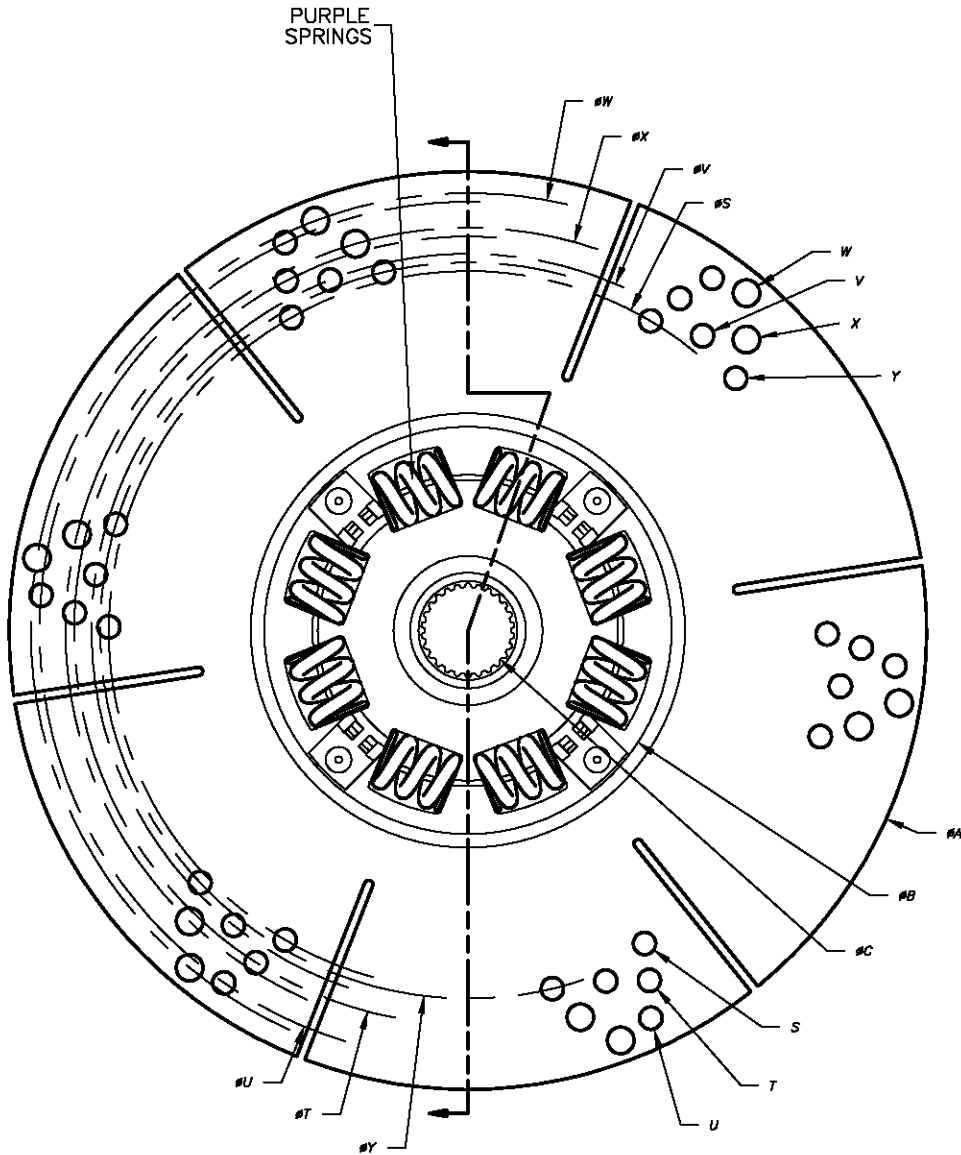
NOTES:
OEM # 120-8-1446
OEM # AS8-K2C

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

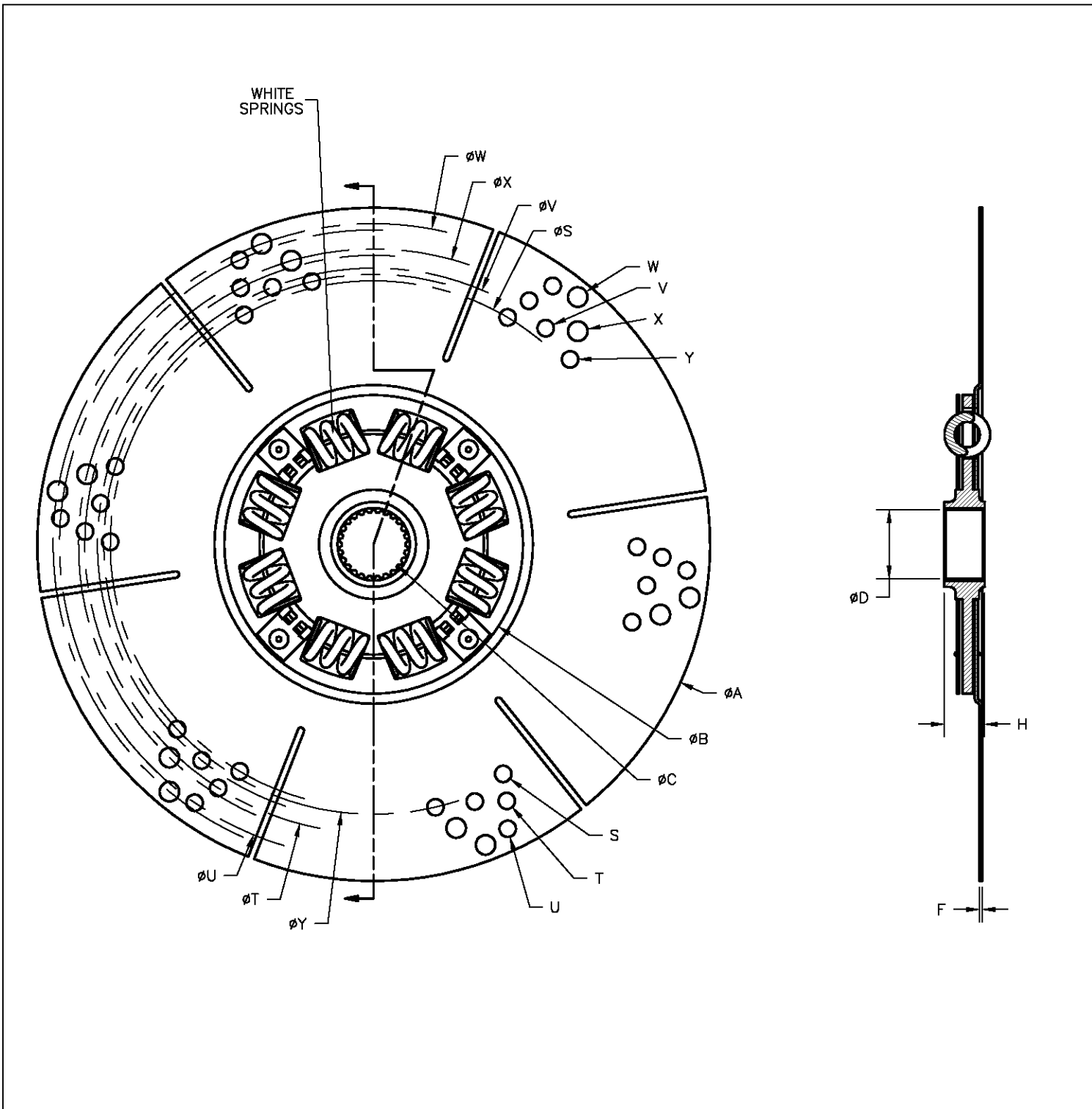
DRAWN BY: **JMS**

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]

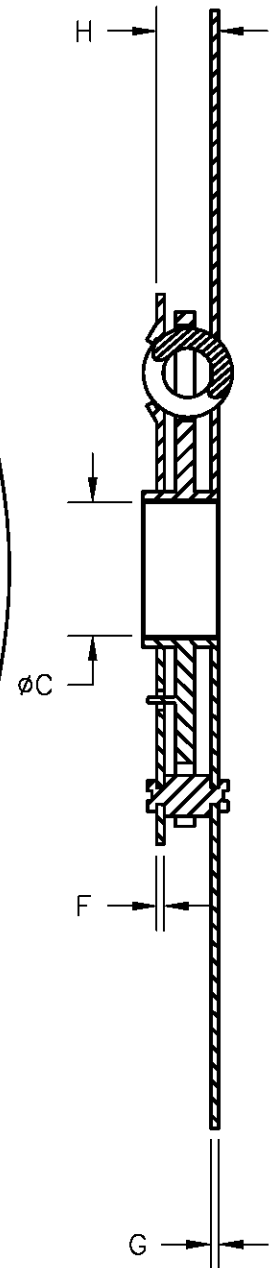
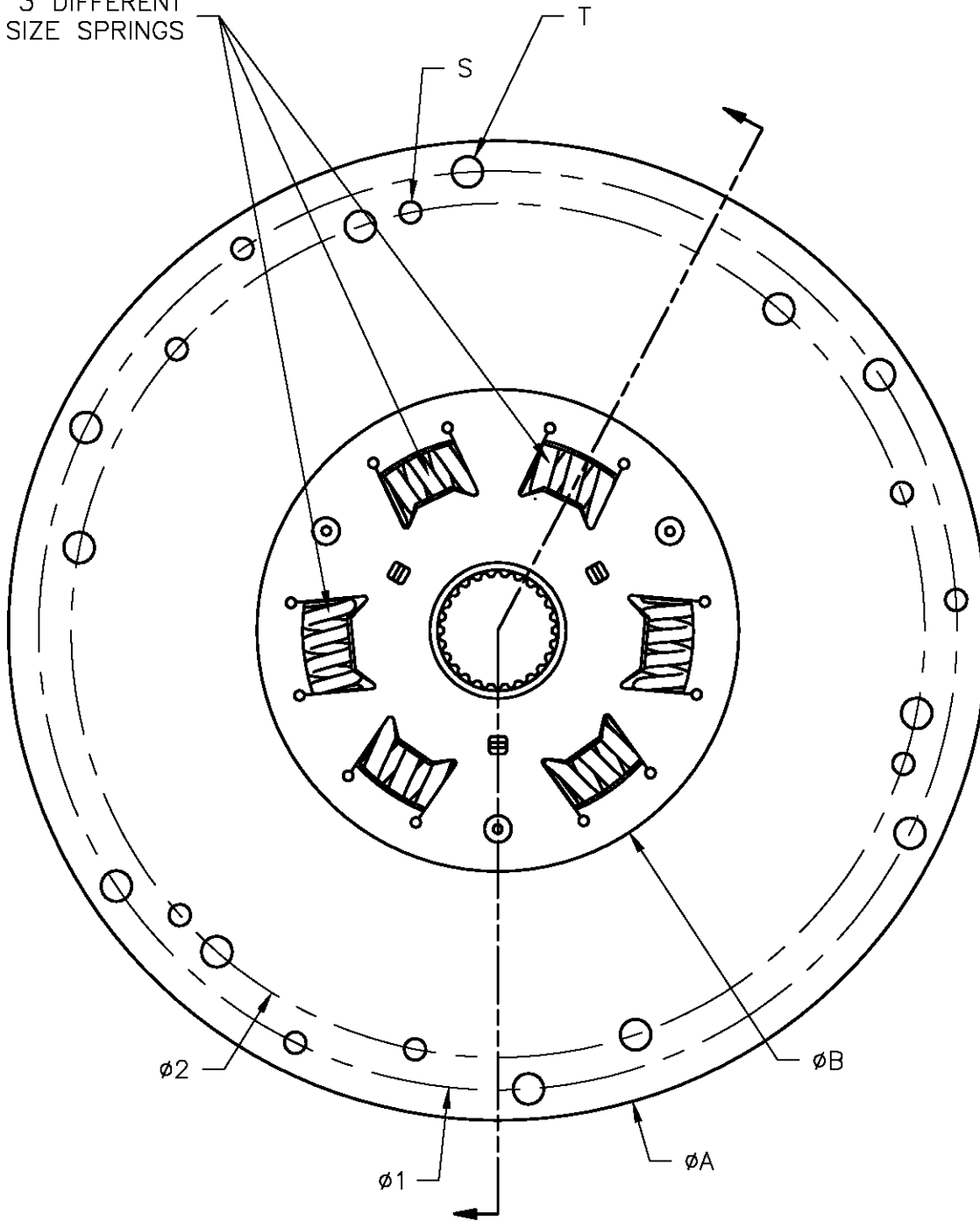
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PART NUMBER
DA-107
REV: IR



DAMPER INFORMATION					THCK G:	APPLICATION	
TEETH: 26		TORQUE: 450 ft lb 610.118 Nm		THCK G:	DAMPER		NOTES: OEM # 1004-650-008 OEM # AS5-K2C
DIA A:	13.24 [336.55]	HOLE DIA S:	0.322 [8.18]	HOLE DIA X:	0.388 [9.86]	CEN. V:	
DIA B:	5.880 [149.35]	HOLE DIA T:	0.322 [8.18]	HOLE DIA Y:	0.322 [8.18]	CEN. W:	12.625 [320.68]
DIA C:	1.251 [31.78]	HOLE DIA U:	0.322 [8.22]	HOLE CEN. S:	10.375 [263.53]	CEN. X:	11.625 [295.28]
DIA D:	1.353 [34.37]	HOLE DIA V:	0.322 [8.18]	HOLE CEN. T:	11.375 [288.93]	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]
					THCK H:	DRAWN BY: JMS	
					THCK H:	CHECKED BY: CDH	
					OAT:	PART NUMBER	
					OAT:	DA-108	
					SCALE: NONE	REV: IR	
					ALTO PRODUCTS CORP. One Alto Way Atmore, AL 36504 PH: (251)-368-7777 FAX: (251)-368-7774 www.AltoUSA.com		

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

APPLICATION

DAMPER

NOTES:

OEM # 1866-032-231

OEM # 855389-3

DRAWN BY:

JMS

CHECKED BY:

CDH

TEETH: 26		TORQUE: 313 ft lb 424.371 Nm			
DIA A: 11.315 [287.40]	HOLE 0.250 DIA S: [8.35]	HOLE N/A DIA X: N/A	HOLE N/A CEN. V: N/A		
DIA B: 5.567 [141.40]	HOLE 0.356 DIA T: [9.04]	HOLE N/A DIA Y: N/A	HOLE N/A CEN. W: N/A		
DIA C: 1.35 [34.29]	HOLE N/A DIA U: N/A	HOLE 10.615 CEN. 1: [269.62]	HOLE N/A CEN. X: N/A		
DIA D: N/A N/A	HOLE N/A DIA V: N/A	HOLE 9.865 CEN. 2: [250.57]	HOLE N/A CEN. Y: N/A		
DIA E: N/A N/A	HOLE N/A DIA W: N/A	HOLE N/A CEN. U: N/A	THCK F: 0.077 [1.96]		

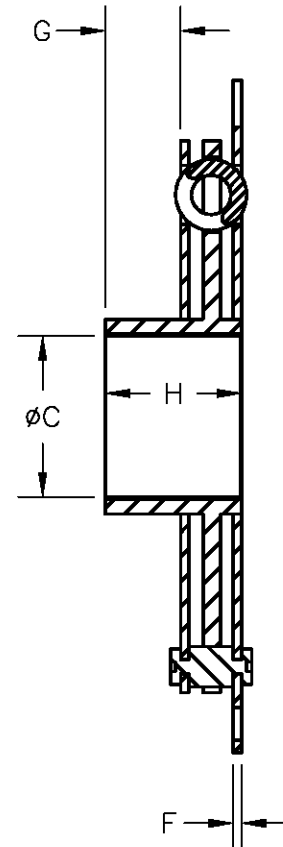
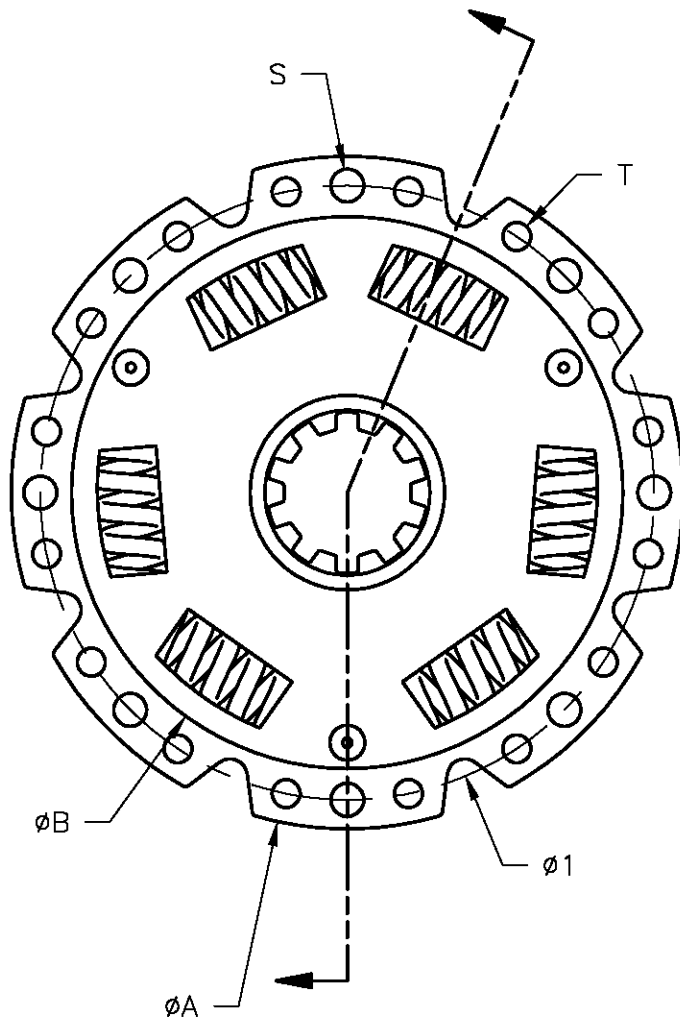
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PART NUMBER

DA-206

REV: IR



DAMPER INFORMATION

THCK G: 0.512
[13.00]

THCK H: 0.984
[25.00]

OAT: N/A
N/A

SCALE: NONE

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APPLICATION

DAMPER

NOTES:

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

DRAWN BY:

JMS

CHECKED BY:

CDH

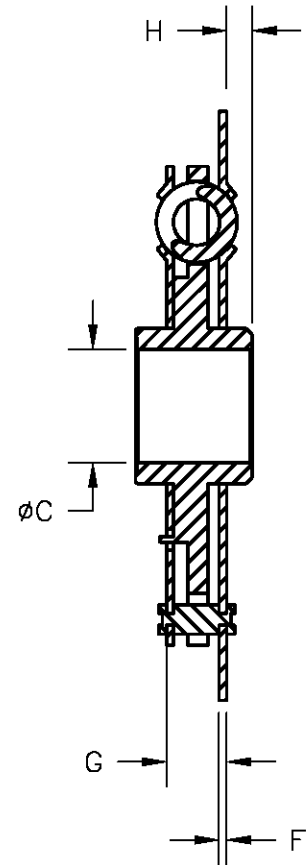
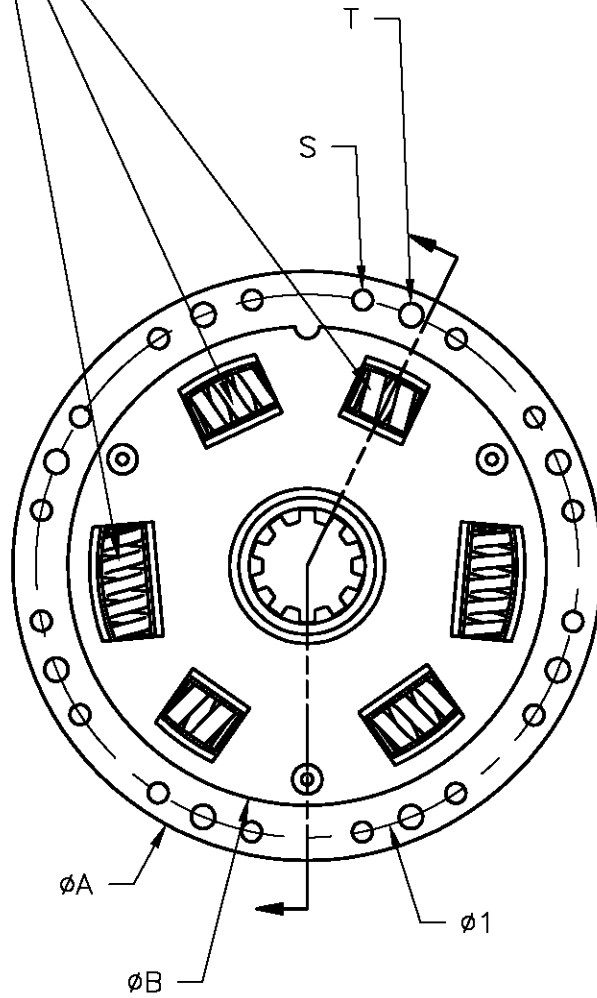
PART NUMBER

DA-301

REV: IR

TEETH:	10		TORQUE: 121.5 ft lb 164.731 Nm	
DIA A:	4.783 [121.50]	HOLE DIA S:	0.236 [5.99]	HOLE DIA X: N/A
DIA B:	3.937 [100.00]	HOLE DIA T:	0.201 [5.11]	HOLE DIA Y: N/A
DIA C:	1.141 [29.00]	HOLE DIA U:	N/A	HOLE CEN. 1: 4.370 [111.00]
DIA D:	N/A	HOLE DIA V:	N/A	HOLE CEN. T: N/A
DIA E:	N/A	HOLE DIA W:	N/A	HOLE CEN. U: N/A
				HOLE CEN. V: N/A
				HOLE CEN. W: N/A
				HOLE CEN. X: N/A
				HOLE CEN. Y: N/A
				THCK F: 0.060 [1.52]

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

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]

OAT: 1.181
[30.00]

SCALE: NONE

DRAWN BY:

JMS

CHECKED BY:

CDH

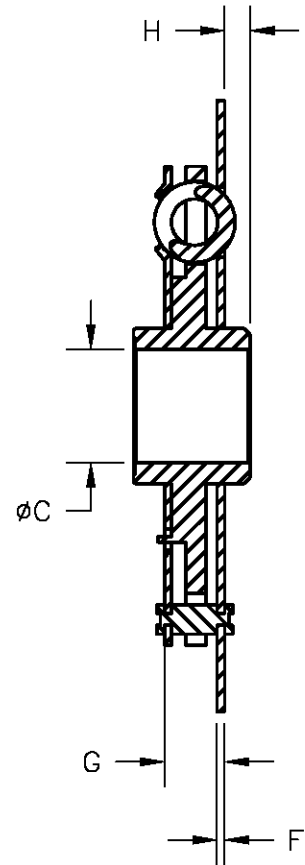
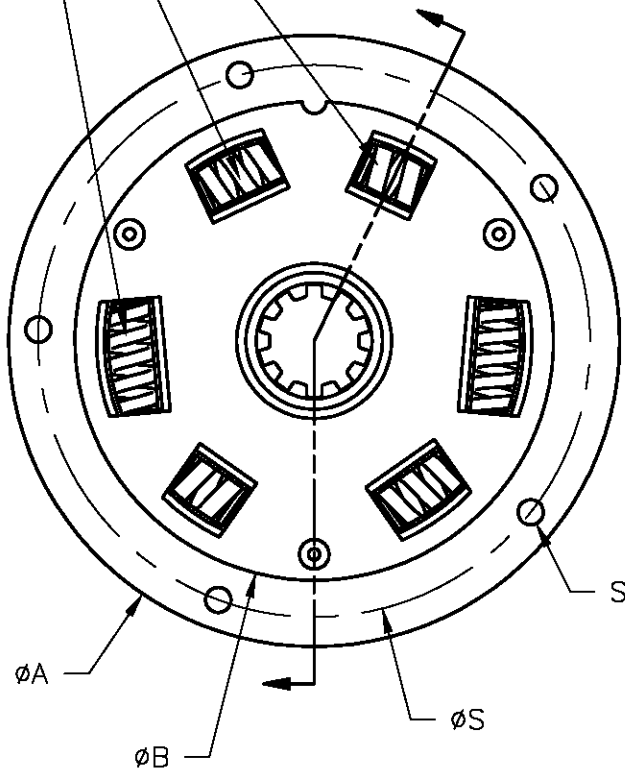
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PART NUMBER

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

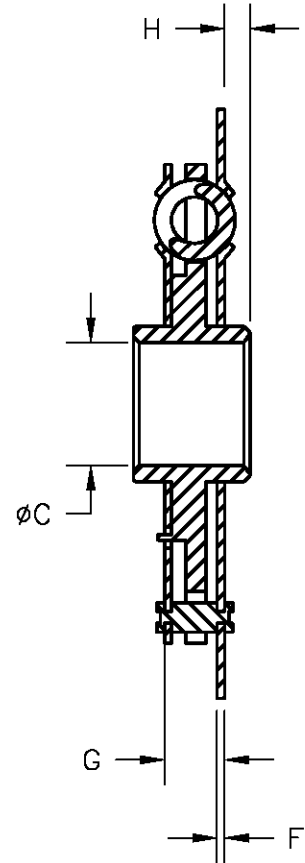
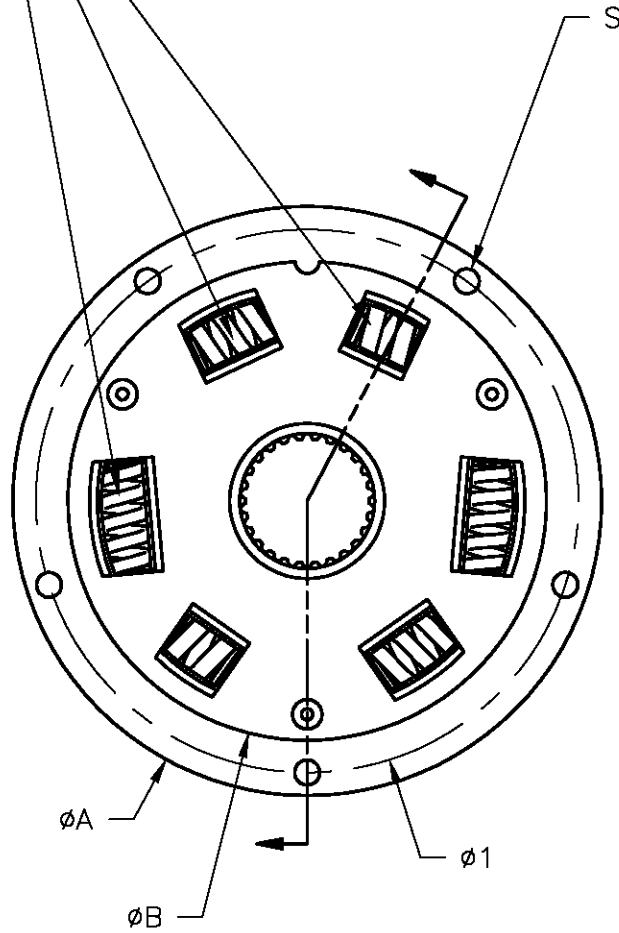
DRAWN BY: JMS

CHECKED BY: CDH



PART NUMBER
DA-303
REV: IR

3 DIFFERENT
SIZE SPRINGS



DAMPER INFORMATION

THCK G: 0.560
[14.22]

THCK H: 0.260
[6.60]

OAT: 1.175
[29.84]

SCALE: NONE

APPLICATION DAMPER

NOTES:
OEM #1866-061-002

DRAWN BY:

BTB

CHECKED BY:

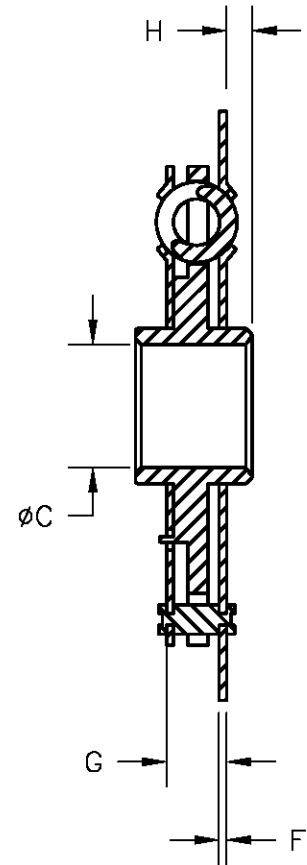
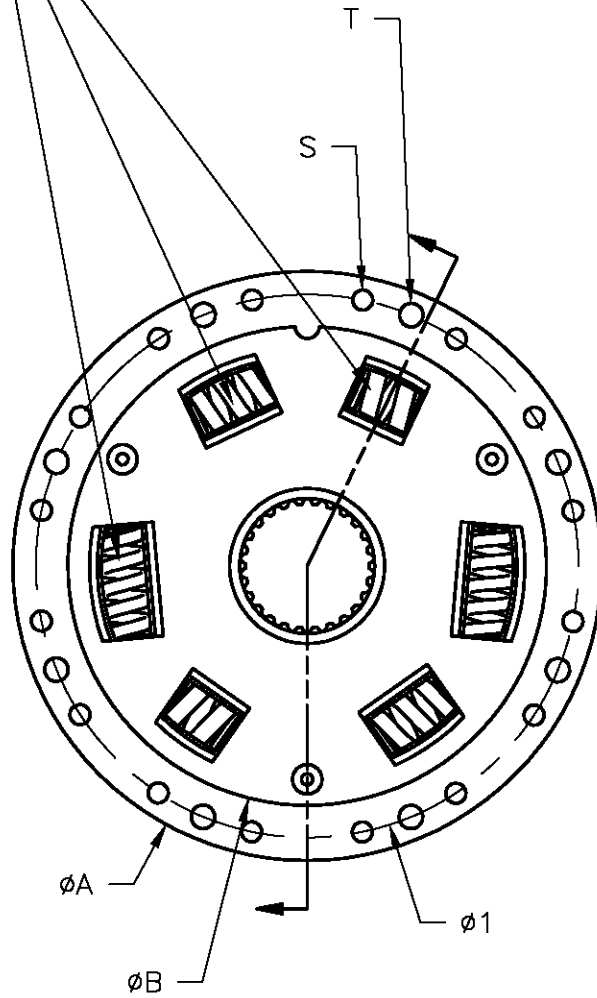
CDH

TEETH: 26		TORQUE: 195.45 ft lb 265 Nm			
DIA A: 6.187 [157.16]	HOLE DIA S: 0.255 [6.48]	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA B: 4.849 [123.16]	HOLE DIA T: NA	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA C: 1.343 [34.13]	HOLE DIA U: N/A	HOLE DIA X: 5.512 [140.00]	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA D: N/A	HOLE DIA V: N/A	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	HOLE DIA W: N/A
DIA E: N/A	HOLE DIA W: N/A	HOLE DIA X: N/A	HOLE DIA Y: N/A	HOLE DIA Z: N/A	THCK F: 0.079 [2.01]

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DA-304
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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