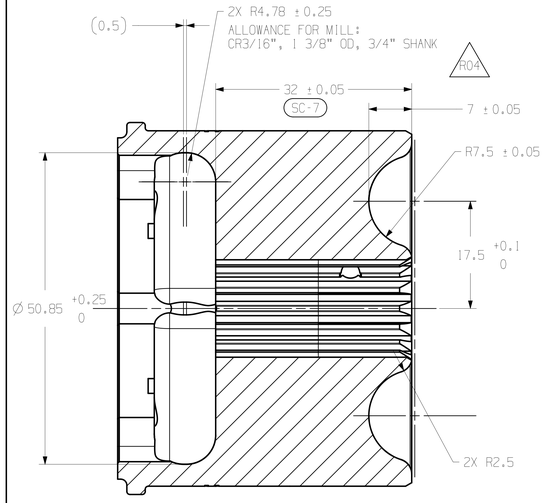

SECTION A-A
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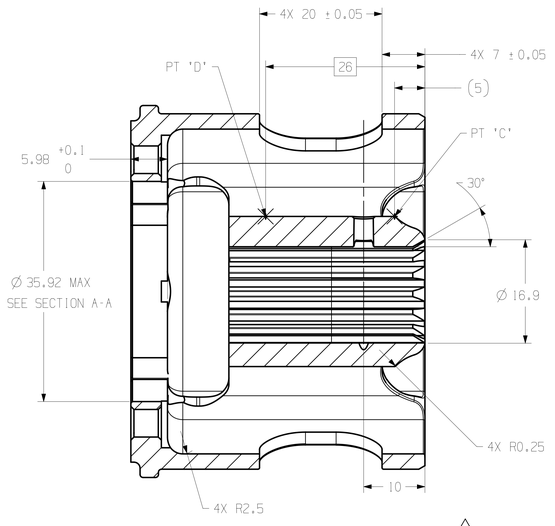

R04 SECTION B-B
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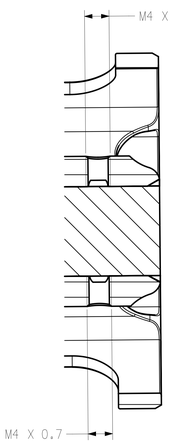

R04 PARTIAL SECTION J-J
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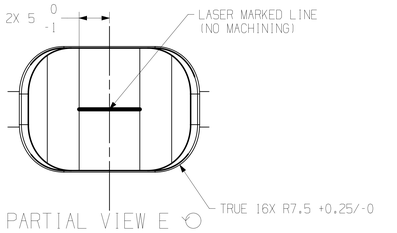


PARTIAL VIEW E
(REMOVED)

ALL DIMENSIONS REPEATED 4X

R04

RELEASE STATUS	DATE	NAME
DRAWN	14 SEP 17	YB
CHECKED	20 SEP 17	AOP
RELEASED		AOP

ISTITUTO ITALIANO DI TECNOLOGIA

PART NAME	HAA TORQUE CELL
PART NUMBER	209
REVISION	R04
DESCRIPTION	HQR HAA FOIL-TYPE BENDING-MODE TORQUE CELL
PROJECTION METHOD	
MATH DATA	HQR_209_HAA_TORQUE_CELL_R04.prt
SHEET SIZE	A1
SHEET NUMBER	1 / 1
MATERIAL	17-4 PH CONDITION A (HRC 35 MIN CHECK IN 'H1')
UNITS	MM
SCALE	2 : 1
SURFACE TREATMENT	NONE
UNDIMENSIONED ROUND	R = 0.1
HEAT TREATMENT	SEE MATERIAL
UNDIMENSIONED CHAMFER	0.25X45°
MASS	260 G
MAX ROUGHNESS	R_a 3.2

TOLERANCE NORM: UNI EN 22768-1 / 22768-2
DIMENSIONAL TOLERANCE CLASS - f
GEOMETRICAL TOLERANCE CLASS - H

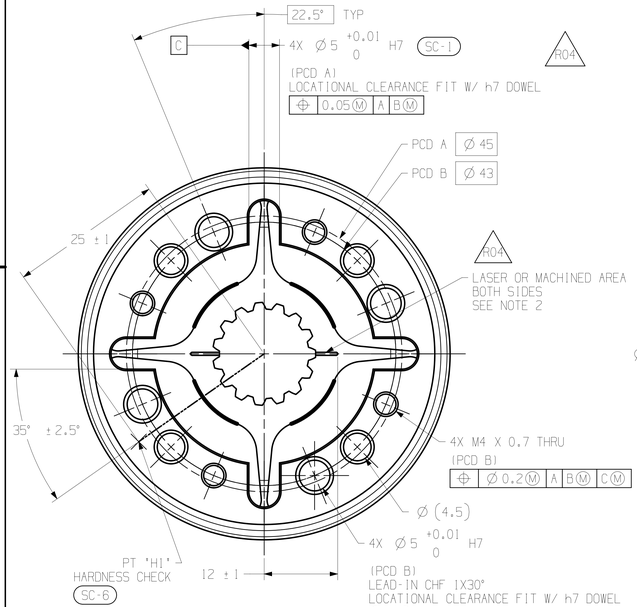
IF A, B, C EXIST AND UNLESS OTHERWISE SPECIFIED
⌖ | Ø 0.2Ⓜ | A | BⓂ | CⓂ — ALL CIRCULAR FEATURES OF SIZE
⌓ | 0.5 | A | BⓂ — ALL FORMS WITH BLENDED UNIFORMITY

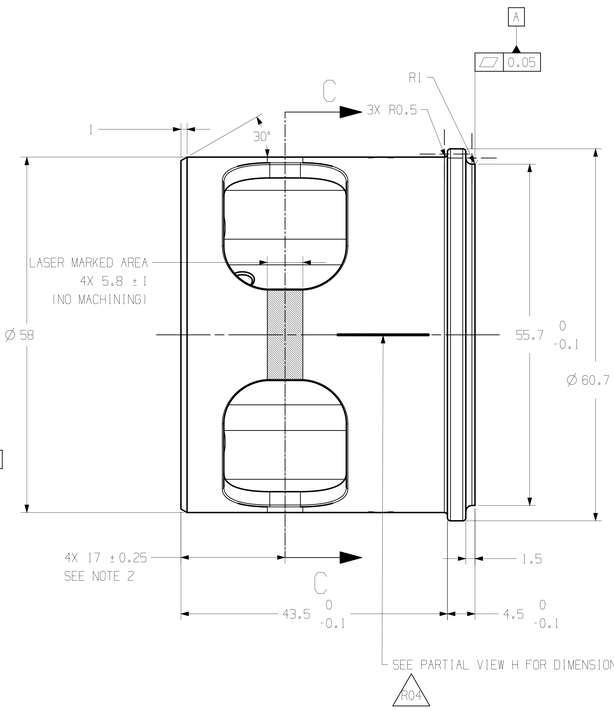
GENERAL TOLERANCES FOR LINEAR DIMENSIONS EXCEPT FOR BROKEN EDGES IN MM

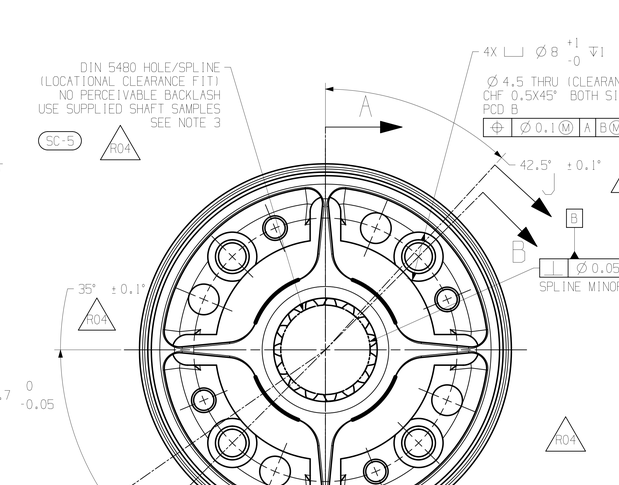
TOELRANCE CLASS		RANGES OF NOMINAL LENGTH IN MM					
DESIGNATION	DESCRIPTION	0.5 up to 3	over 3 up to 6	over 6 up to 30	over 30 up to 120	over 120 up to 400	over 400 up to 1000
f	fine	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3

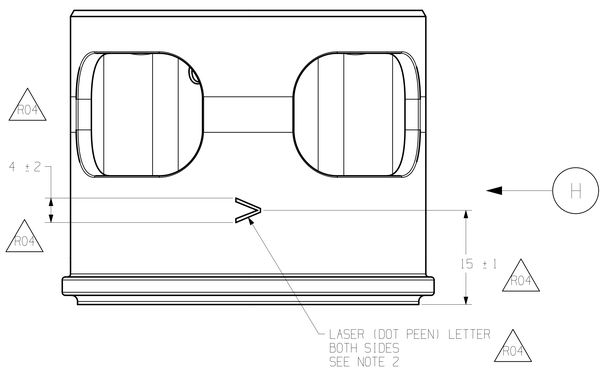
REVISIONS

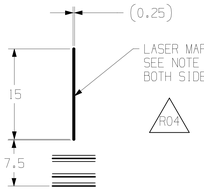
REV	DESCRIPTION	NAME	DATE
R00	RELEASED FOR LIMITED PROTOTYPE PRODUCTION	AOP	02 MAR 17
R01	HEAT TREATMENT 'H900...YS 1379 MPa', CHANGED TO 'TH 1050 UTS 1379'	AOP	03 MAR 17
R02	HEAT TREATMENT 'TH 1050 UTS 1379' CHANGED TO 'H900...YS 1379 MPa'	AOP	09 MAR 17
R03	"DIN 5480 HOLE/SPLINE" WAS "DIN 5480-W 17X1X15X8H"; HEAT TREATMENT WAS "H900..."; MATERIAL WAS '17-4 PH"; ROUGHNESS WAS "R_a 0.8 MAX"; ADDED "LASER" to "MARKED LINE", REMOVED REFERENCE TO NOTE 2 AND "NO MATERIAL REMOVAL" CHANGED FOR CLARITY TO "NO MACHINING"; "...UNLESS OTHERWISE SPECIFIED NO MATERIAL REMOVAL" REMOVED FROM NOTE 3; "MARKED AREA...SEE NOTE 2...(NO MATERIAL REMOVAL)" CHANGED TO "LASER MARKED AREA... (NO MACHINING)" ADDED "4X LASER MARKED AREA..."; MOVED DETAIL D	AOP	19 APR 17
R04	RELEASED FOR ROBOT BUILD; MOVED SECTION 'B-B'; REMOVED DIMENSION 'M3 X 0.5 THRU'; ADDED PARTIAL SECTION 'J-J' WITH DIMENSIONS; REMOVED DETAIL G; ADDED DIMENSION '42.5±0.1'; ADDED DIMENSION '35±0.1'; 'LASER MARKED...AREA...' WAS '0.5 +0.5 0'; ADDED NOTE 'SEE PARTIAL VIEW H FOR DIMENSIONS'; '4±2' WAS '3.45±2'; '15±1' WAS '13.2±0.5'; ETCHED/STAMPED TEXT WAS ''"; 'LASER OR MACHINED' WAS 'ETCHED LINE 0.2...'; 'LASER DOT PEEN...' WAS 'STAMPED OR ETCHED TEXT...'; 'LASER MARK...' WAS 'ETCHED...'; CHANGED NOTE 2 FROM 'COLOURED AFTER FABRICATION... IN BLACK'; REMOVED '4X LASER MARKED...'; ADDED 'NO PERCEIVABLE BACKLASH'; SC-1 RENAMED TO SC-7; MOVED SC-1; REMOVED SPELLING ERROR 'IA (' FROM MATERIAL;	YB	20 SEPT 17



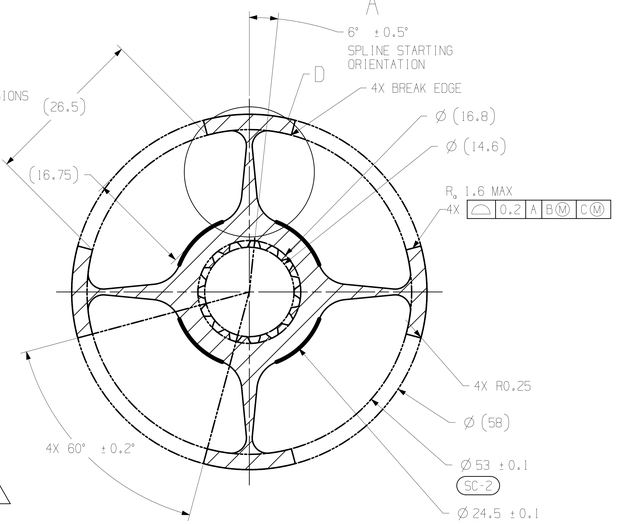




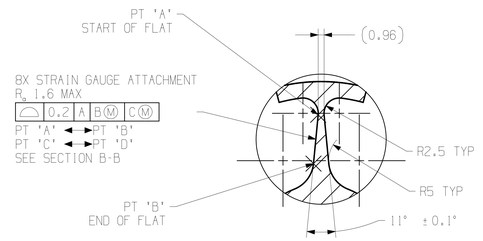




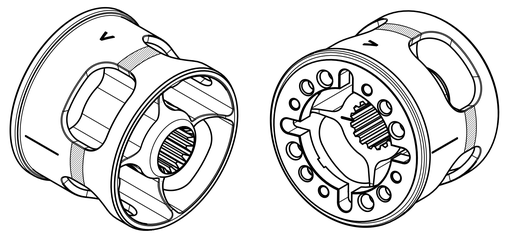
PARTIAL VIEW H
(REMOVED)



SECTION C-C
(REMOVED)



DETAIL D
SCALE 2:1
ALL DIMENSIONS REPEATED 4X



PICTORIAL VIEWS

NOTES

N01	PART MUST BE FREE OF BURRS AND SHARP EDGES, DETRIMENTAL TO SAFE HANDLING OR PART PERFORMANCE
N02	MARKING SHOULD HAVE CONTRAST TO BASE MATERIAL (CLEAR VISIBILITY)
N03	SUPPLIER MUST CONDUCT FITMENT TEST WITH SUPPLIED TWO SHAFTS; SHAFTS ARE W17X1X15X30X8f; FIT MUST BE SLIDING WITH NO PERCEIVABLE PLAY; SEE 'l7xlxl5 din5480.dxf'
N04	SEE MATH DATA FOR ALL UNDIMENSIONED FEATURES AND MARKINGS
N05	ALL SIGNIFICANT CHARACTERISTICS (SC-#) REQUIRE SUPPLIER TO PROVIDE DIMENSIONAL REPORT AND/OR PROOF OF FITMENT