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KARANDIKAR LABORATORIES PVT. LTD. BOISAR

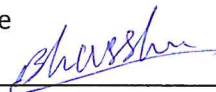
Format: F#07 b.1 Rev 10

TYPE TEST REPORT

IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)
Degrees of Protection Provided by Enclosures (IP Code)

Report No. : KLPL/BTG/22/07-21
ULR No. : TC631122000000341F
Discipline : Electrical Discipline
Group/Category : Environmental Test Facility
Sub-category : Ingress protection test



Date of issue : **14.07.2022**
No. of pages : 06 PAGES + Annexure
Compiled by (+ signature)..... : Bhavesh Rawate 

Designation: Testing Engineer

Approved by (+ signature)..... : Javed Shaikh 

Designation: Dy.Laboratory Manager

Item Received On : 04.07.2022 in Good Condition

Test Completion Date : 11.07.2022

Client

Name : **M/s. Rotork Control (India) Pvt. Limited.**
: 28B, Ambattur Industrial Estate (North), Ambattur,
Chennai - 600 098, India.

Test Specification

Standard : **IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)**
Specified IP-Code : **IP68**

Equipment Under Test

Type of Test Object : **CKQ Range Of Actuator**
Model No. : CKQ 400/610
Sr. No..... : IN07960301
Manufacturer : **M/s. Rotork Control (India) Pvt. Limited .**

Annexure :

Drawing No..... : BR/MISC-11795, Rev No.00, Dated:11.07.2022(03 Pages)



NOTE : 1) This refers only to the particular item(s) submitted for testing.

2) If necessary, this report shall be reproduced ONLY in full.

Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar-401501, INDIA

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Report No.: KLPL/BTG/22/07-21

Date: 14.07.2022

Possible test case verdicts:

Test case does not apply to the test object : N (Not Applicable)

Test object does meet the requirement..... : P (Pass)

Test item does not meet the requirement : F (Fail)

Test case has not been checked : _____

General remarks:

"(See remark #)" refers to a remark appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

The test results presented in this report relate only to the object tested.

This test report shall not be reproduced except in full without the written approval of the testing Laboratory.

IP6X test conducted at Laboratory (Boisar).

IPX8 test conducted at Laboratory (Boisar).

Note: - MAJOR EQUIPMENTS USED

Tests	Required Instruments	Id. No.	Cal Due Date	Used Y/N
5X / 6X	Vacuum Meter	K&A 1108/1-17	04.02.2023	Y
	Rotameter	K&A 426	02.01.2023	Y
	Timer	K&A 581/1-12	08.08.2022	Y
	DTC with sensor	K&A 581/2-12	01.08.2022	Y
X7 /X8	Scale	K&A 107	29.09.2022	Y
	Stop watch	K&A 1128-18	15.01.2023	Y





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IEC 60529: 2013 & IS/IEC 60529:2001(RA 2019)

Clause	Requirement - Test	Result- Remark	Verdict
10	Marking.	--	N
11	General requirement for tests.		
11.1	Tests should be carried out under the standard atmospheric conditions described in IEC 60068-1	--	P
11.2	Test samples shall be in a clean and new condition.	--	P
	The relevant product standard shall specify details such as: The number of samples to be tested;	--	N
	-conditions for mounting, assembling and positioning of the samples;	--	P
	-the pre-conditioning, if any, which is to be used;	--	N
	-whether to be tested energized or not;	--	N
11.5	Empty enclosures		
	If the enclosure is tested without equipment inside, the manufacturer shall ensure that after the electrical equipment is enclosed the enclosure meets the declared degree of Protection of the final product.	--	N

12 Tests for protection against access to hazardous parts indicated by the first characteristic numeral.					
First, characteristic Numeral.	Test means (Access probes)	Test force	Test Conditions Refer IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)		
0	No test required	-	-	--	N
1	The access probe, sphere of 50 mm \emptyset shall not fully penetrate and adequate clearance shall be kept.	50N \pm 10%	Cl.12.2	--	N
2	The jointed test finger may penetrate up to 80 mm length but adequate clearance shall be kept.	30N \pm 10%	Cl.12.2	--	N
3	The access probe, sphere of 2.5 mm \emptyset shall not penetrate and adequate clearance shall be kept.	3N \pm 10%	Cl.12.2	--	N
4	The access probe of 1,0 mm \emptyset shall not penetrate and adequate clearance shall be kept.	1N \pm 10%	Cl.12.2	--	N
5	Test conditions for IP 5X: Same As Above	1N \pm 10%	Cl.12.2	--	N
6	Test conditions for IP 6X: Same As Above	1N \pm 10%	Cl.12.2	--	N



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Date: 14.07.2022

IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)					
Clause	Requirement – Test			Result-Remark	Verdict
13	Tests for protection against solid foreign objects indicated by the First characteristic numeral.				
First, characteristic Numeral.	Test means (object probes and dust chamber)	Test force	Test Conditions Refer IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)	--	
0	No test required	-	-	--	N
1	Rigid sphere without handle or guard 50 mm diameter.	50N ±10%	Cl.13.2	--	N
2	Rigid sphere without or guard 12, 5 mm diameter.	30N ±10%	Cl.13.2	--	N
3	Rigid steel rod 2,5mm diameter with edges free from burrs	3N± 10%	Cl.13.2	--	N
4	Rigid steel wire 1, mm diameter with edges free from burrs.	1N± 10%	Cl.13.2	--	N
5	Dust chamber, with under pressure	NA	Cl.13.4+13.5	--	N
6	Dust chamber, The enclosure is maintained below the Surrounding atmospheric pressure by a vacuum pump.	NA	Cl.13.4+13.6	For 8 hrs. As extraction rate is less than 40 Volumes per hour and max depression of 20mbar.	P
13.6.2	Acceptance conditions for the first characteristic numeral 6X. The protection is satisfactory if no hazardous deposit of dust is observable inside the UUT at the end of test.			No ingress of powder found inside the UUT.	P





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Date: 14.07.2022

IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)				
Clause	Requirement – Test		Result-Remark	Verdict
14	Tests for protection against water indicated by the second characteristic numeral.			
Second, characteristic Numeral.	Test means	Test Conditions Refer IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)	--	
0	No test required	Cl.14.2.0	--	N
1	Drip box, Enclosure on turntable	Cl.14.2.1	--	N
2	Drip box, Enclosure in 4 fixed positions of 15 ° tilt	Cl.14.2.2	--	N
3	oscillating tube or spray nozzle, 60° from vertical	Cl.14.2.3	--	N
4	oscillating tube or spray nozzle, 180° from vertical	Cl.14.2.4	--	N
5	6.3-mm nozzle, tested with a spraying nozzle, distance 2.5 m to 3 m, water flow rate 12.5 l/min	Cl.14.2.5	--	N
6	12.5-mm nozzle, tested with a spraying nozzle, distance 2.5 m to 3 m, water flow rate 100 l/min	Cl.14.2.6	--	N
7	Immersion tank,	Cl.14.2.7	--	N
8	Immersion tank, Continuous immersion subject to agreement. Water temperature does not differ from that of equipment by more than 5K. Test Duration: 96 Hrs	Cl.14.2.8	The lowest point of UUT is located 8 meter below surface of water.	P
-	Acceptance conditions for IPX8: The protection is satisfactory if no water has accumulated near the insulation, cable end or entered cables or interferes with the correct operation of the equipment.	Cl.14.3	No ingress of water observed inside the UUT.	P
-	Tests for protection against access to hazardous parts indicated by the additional letter.	Cl.15	--	N

SUMMARY OF INGRESS PROTECTION TESTS ACCORDING TO IEC 60529:2013 & IS/IEC 60529:2001 (RA 2019)

Conclusion of the IP68 test: PASS.

The results of the tests were in compliance with the requirements in the standard

IEC 60529: 2013 & IS/IEC 60529:2001 (RA 2019)

UUT=Unit Under Test



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Picture1: CKQ Range of Actuator



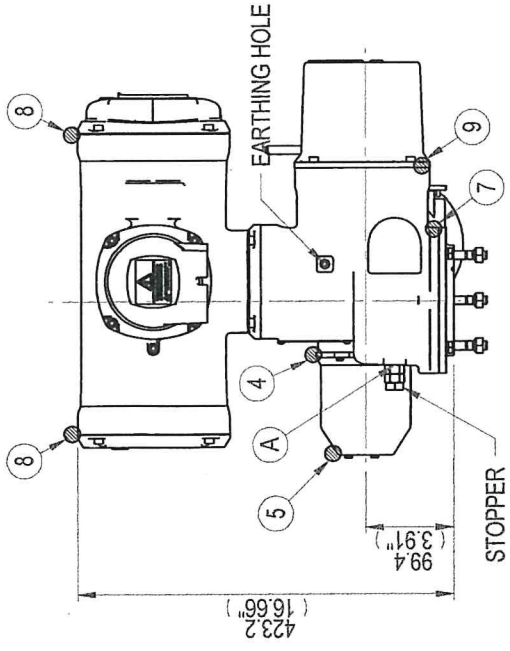
Pictute2: No ingress of powder & water observed

END OF REPORT

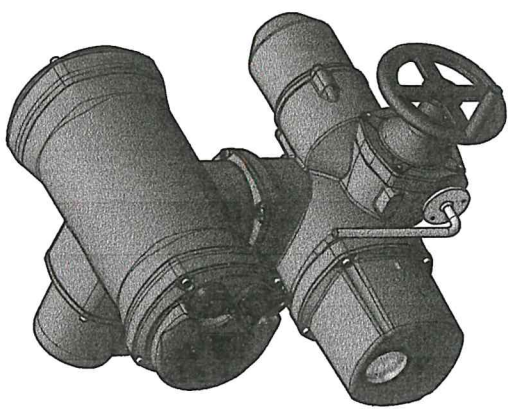
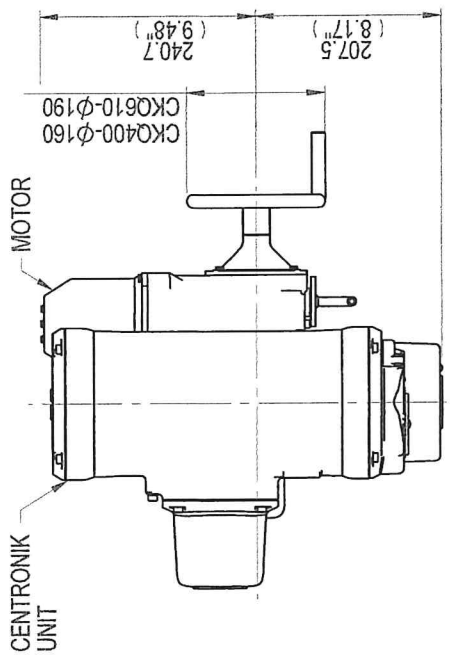


"O" RING LOCATION	DMENSIONS	MATERIAL
HAND WHEEL COVER (1)	104.4 x 1.78	NITRILE
CENTRONIK UNIT COVER (2)	115 x 3	NITRILE
INDICATOR WINDOW (3)	54 x 1.50	NITRILE
MOTOR HOUSING (4)	94.97 x 1.78	NITRILE
MOTOR END CAP (5)	26.7 x 1.78	NITRILE
TERMINAL BUNG (6)	115 x 3	NITRILE
BASE (7)	125 x 3	NITRILE
CENTRONIK UNIT END CAPS (8)	115 x 3	NITRILE
M5M UNIT COVER (9)	136 x 3	NITRILE
CENTRONIK UNIT DISPLAY (10)	RECT 77 x 86 x 3	NITRILE

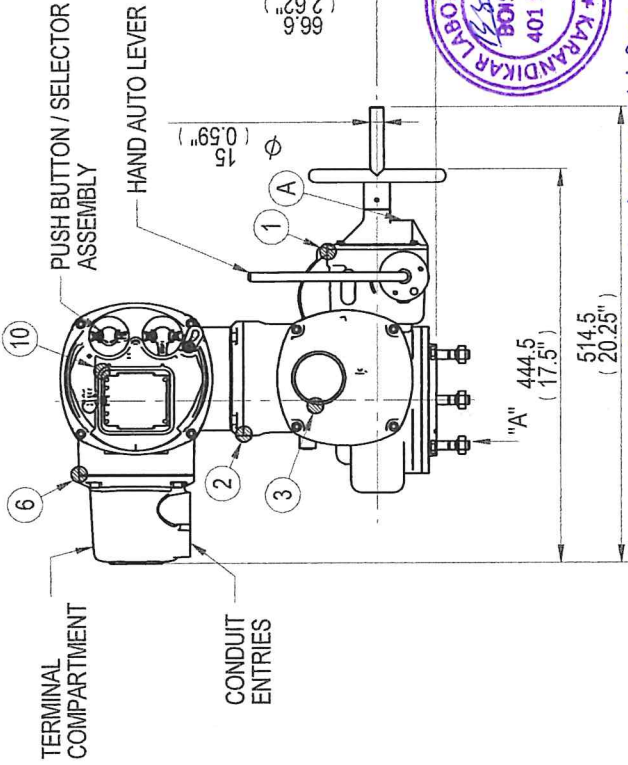
THE CLEARANCE BETWEEN THE SPIGOT AND BORE IS
 MIN. - 0.05 mm
 MAX. - 0.30 mm



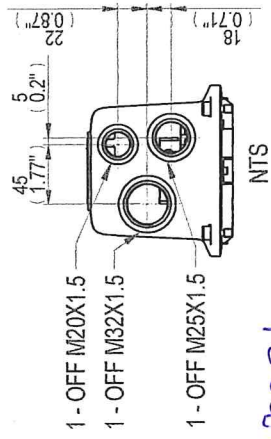
- NOTES:
1. APPROXIMATE WEIGHT OF THE ACTUATOR IS 28 KG
 2. ALL CONDUIT ENTRIES ARE PLUGGED WITH WEATHER PROOF PLUGS.
 3. ALL "O" RINGS ARE ASSEMBLED AFTER APPLYING GREASE
 4. (A) OIL FILTERS AND DRAIN PLUGS



ISO F07 FLANGE
 4 HOLES M8X12 DEEP
 ON 70 PCD
 OR
 ISO F10 FLANGE
 4 HOLES M10X24 DEEP
 ON 102 PCD



VIEW "A"



Report No: KPL12TG 22107-21

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Created: ALLEN MARSH B
 2022-07-11
 Checked: ALLEN MARSH B
 2022-07-11
 Approved: ANAND BABU D
 2022-07-11

Dimensions in mm: Scale 1:6

Title: CKQ400/610 - CENTRONIK
 IP68 APPROVAL DRAWING

Drawing Number: BR/MISC-11795

Rev: 00

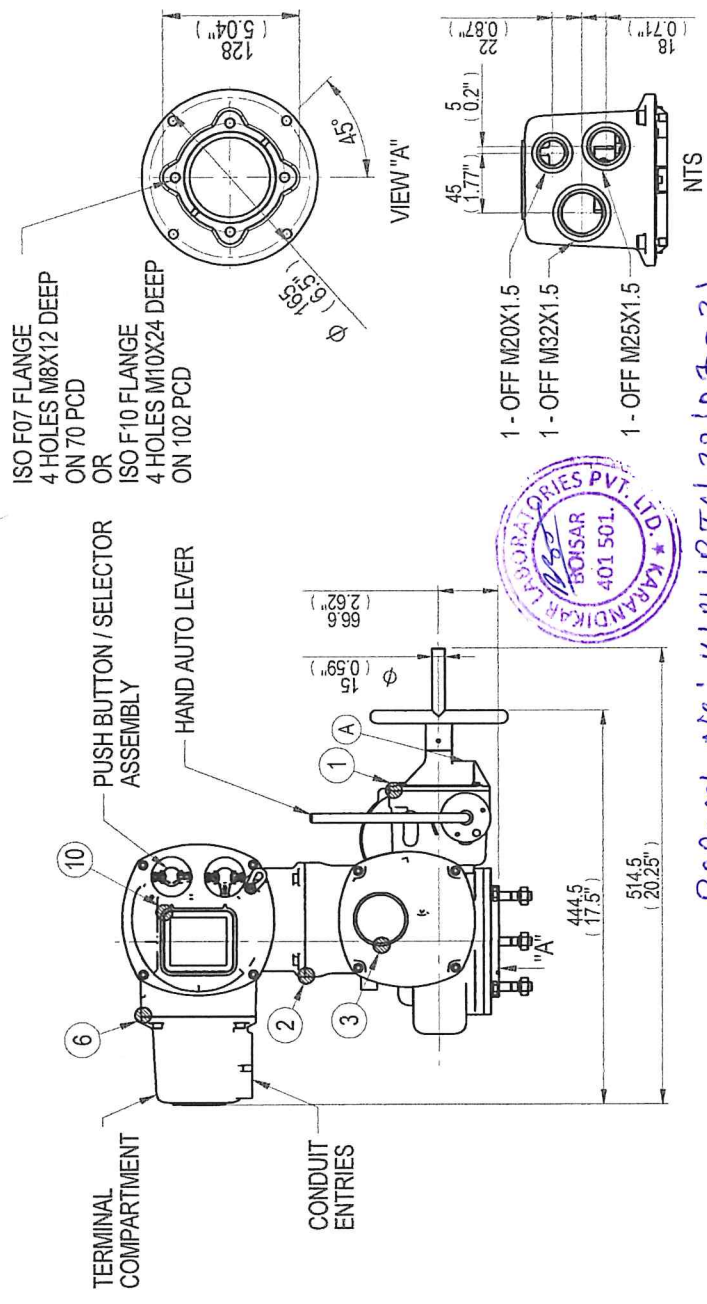
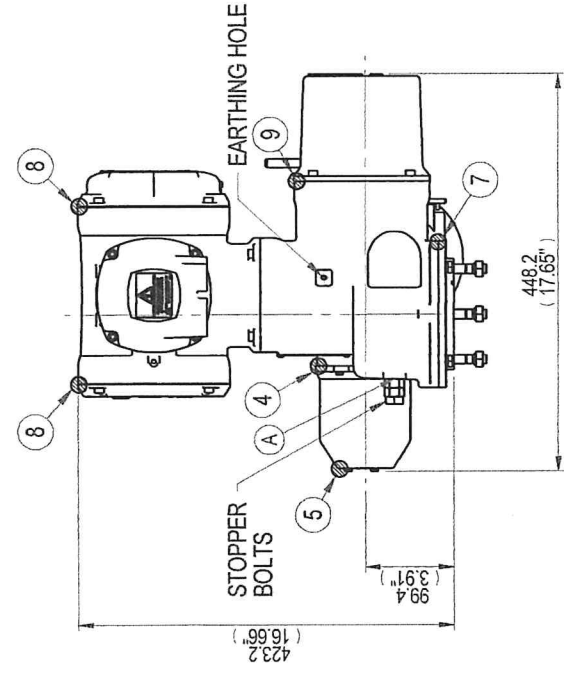
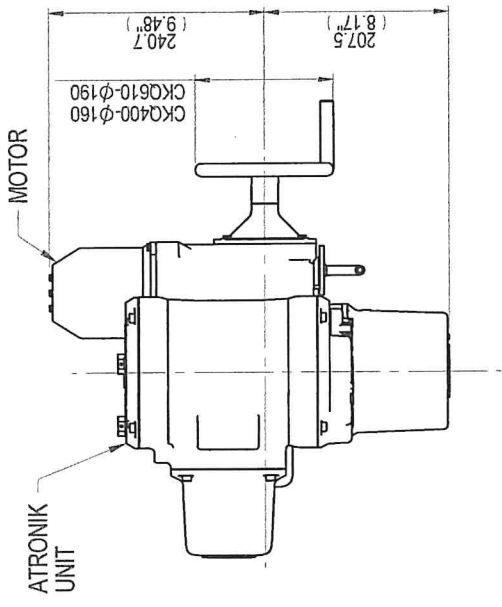
Size: A3 Sheet 1 of 3

Rev	ECN	Revised	Rev. Approved	Date	Charge Description
10				11-07-22	FIRST ISSUE

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"O" RING LOCATION	DIMENSIONS	MATERIAL
HAND WHEEL COVER (1)	104.4 x 1.78	NITRILE
CENTRONIK UNIT COVER (2)	115 x 3	NITRILE
INDICATOR WINDOW (3)	54 x 1.50	NITRILE
MOTOR HOUSING (4)	94.97 x 1.78	NITRILE
MOTOR END CAP (5)	26.7 x 1.78	NITRILE
TERMINAL BUNG (6)	115 x 3	NITRILE
BASE (7)	125 x 3	NITRILE
ATRONIK UNIT END CAPS (8)	115 x 3	NITRILE
MSM UNIT COVER (9)	136 x 3	NITRILE
ATRONIK UNIT DISPLAY (10)	RECT 77 x 86 x 3	NITRILE

THE CLEARANCE BETWEEN THE SPIGOT AND BORE IS
 MIN. - 0.05 mm
 MAX. - 0.30 mm



- NOTES:
- APPROXIMATE WEIGHT OF THE ACTUATOR IS 27 KG
 - ALL CONDUIT ENTRIES ARE PLUGGED WITH WEATHER PROOF PLUGS.
 - ALL "O" RINGS ARE ASSEMBLED AFTER APPLYING GREASE
 - Ⓐ OIL FILTERS AND DRAIN PLUGS

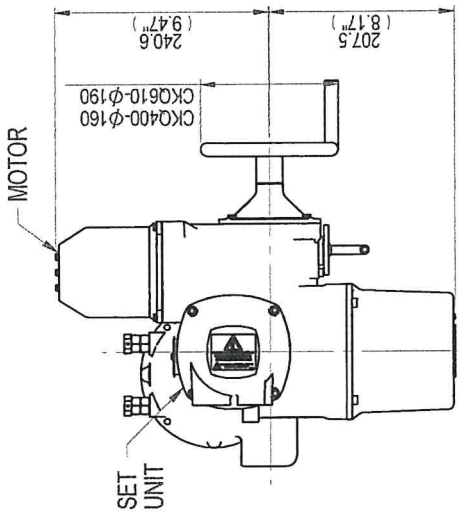
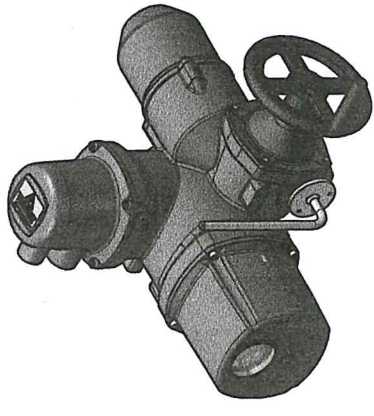
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Checked	ALLEN MARSH, B	2022-07-11	2022-07-11
Approved	ANAND EASU, D	2022-07-11	2022-07-11
Rev	00	00	00
Drawing Number		BR/MISC-11795	
Nominal Mass		-	
Size	A3	Sheet	2 of 3

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Report No: KPI/1876/22/07-21

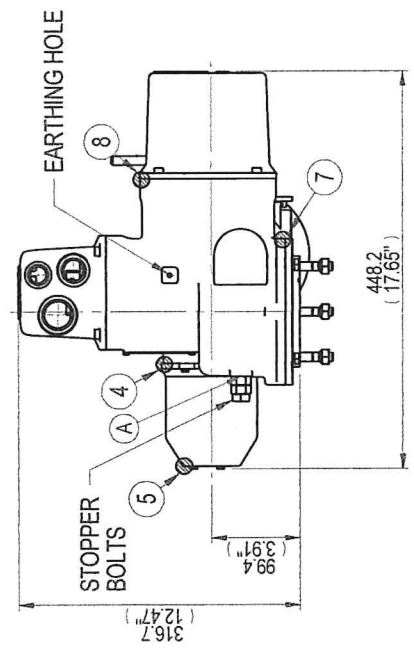
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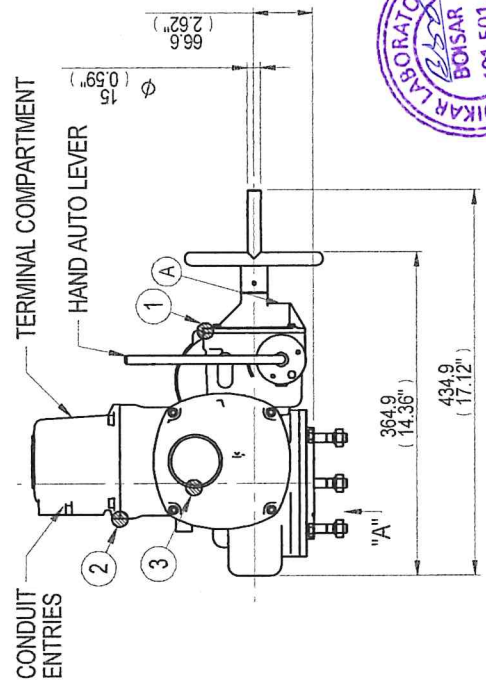


"O" RING LOCATION	DMENSIONS	MATERIAL
HAND WHEEL COVER (1)	104.4 x 1.78	NITRILE
TERMINAL BUNG (2)	1.15 x 3	NITRILE
INDICATOR WINDOW (3)	54 x 1.50	NITRILE
MOTOR HOUSING (4)	94.97 x 1.78	NITRILE
MOTOR END CAP (5)	26.7 x 1.78	NITRILE
BASE (6)	125 x 3	NITRILE
MSM COVER (8)	136 x 3	NITRILE

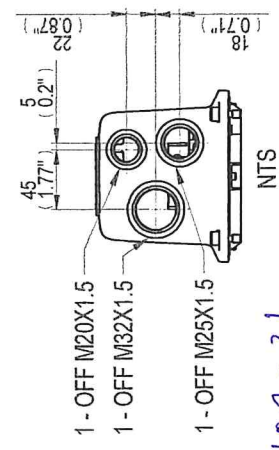
THE CLEARANCE BETWEEN THE SPIGOT AND BORE IS
 MIN. - 0.05 mm
 MAX. - 0.30 mm



ISO F07 FLANGE
 4 HOLES M8X12 DEEP
 ON 70 PCD
 OR
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VIEW "A"



Report No: RPL/BTA/22/07-21

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Dimensions in mm
 Scale: 1:5

Title: CKQ400/610 - BASIC
 IP68 APPROVAL DRAWING

Drawing Number: BR/MISC-11795

Rev: 00

Sheet: 3 of 3

- NOTES:
- APPROXIMATE WEIGHT OF THE ACTUATOR IS 20 KG
 - ALL CONDUIT ENTRIES ARE PLUGGED WITH WEATHER PROOF PLUGS.
 - ALL "O" RINGS ARE ASSEMBLED AFTER APPLYING GREASE
 - Ⓐ OIL FILTERS AND DRAIN PLUGS

Rev	ECN	Revised	Rev. Approved	Date	Change Description
00				11-07-22	FIRST ISSUE