APPENDIX B

PRE-PURCHASED EQUIPMENT SHOP DRAWINGS (SEE 011100)

IQS35B4 WT actuator for existing IW11R2160 gearbox (ON-OFF service)

Max. rating	**actuator**	**135 Nm**	**100 Ft.lbs**
	combination	**115,425 Nm**	**85,500 Ft.lbs**
Weight	**actuator**	**69 Kg**	**152 lbs**
	combination	**375 Kg**	**825 lbs**
Actuator speed		**173 RPM**	
Operating time (combination)		**190 seconds**	
Max. bore	**actuator**	**44 mm**	**1-3/4"**
	gearbox	**203 mm**	**8"**
Voltage		**230 V / 1 ph / 60 Hz**	
Wiring diagram		**3001-000**	
Amperage	**rated torque**	**19 Amps**	
	locked rotor	**56 Amps**	

PROVIDE MOUNTING BASE DETAIL

Submission No. : 1	SUBMITTAL REVIEW	AECOM
Project No. : D265-234-00	Discipline :	
Reviewed - No Comment		Reviewed - Revise and Resubmit
Reviewed - As Noted		Review by Consultant Not Required

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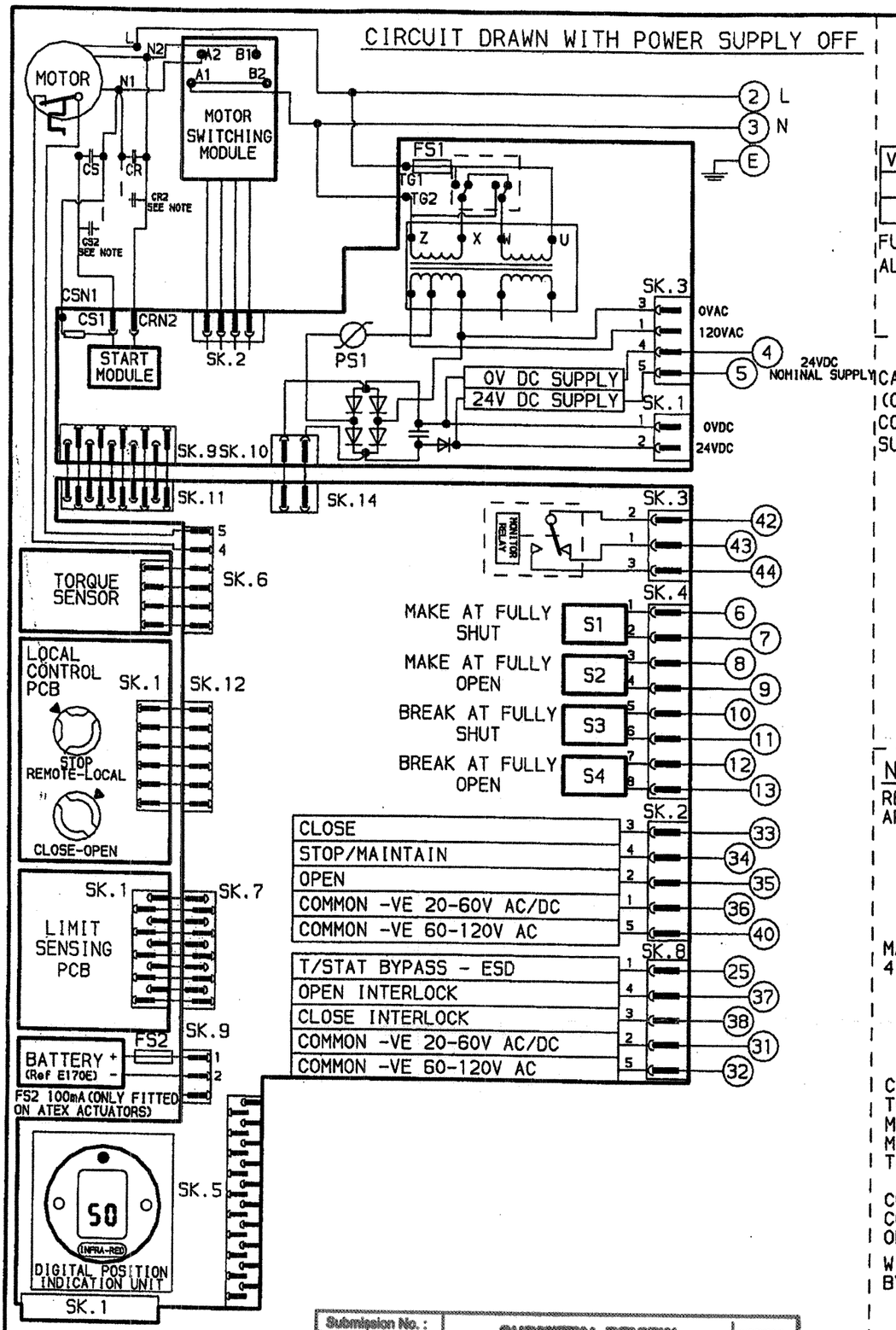
By: _____ Date: APR 24/09



FOR TYPICAL REMOTE CONTROL DETAILS SEE DOCUMENT
RWS300

TRANSFORMER TAPPING OPTIONS

VOLTAGE	50HZ	60HZ
LOW	92-135	92-135
HIGH	184-270	184-270

FUSE FS1 - 500mA ANTI-SURGE
ALL TRANSFORMER TYPES - PS1 SELF RESETTING FUSE

CAPACITOR START/RUN
(CS/CS2 and CR/CR2)
COMBINATIONS & VALUES VARY WITH SUPPLY VOLTAGE & ACTUATOR SIZE.

NOTE

REFER TO PUBLICATION E170E FOR APPROVED FUSES FS1 AND FS2.

MAX EXTERNAL LOAD ON TERMINALS 4 & 5 TO BE 5W.

CONTROL SIGNAL THRESHOLD VOLTAGES
TO BE MINIMUM 'ON' 20V AC/DC
MAXIMUM 'OFF'= 3V
MINIMUM CONTROL SIGNAL DURATION
TO BE 300mS.

CURRENT DRAWN FROM EACH REMOTE CONTROL SIGNAL IS 5mA ON 24V DC OR 12mA ON 120V AC

WIRES ARE IDENTIFIED AT EACH END BY TERMINAL No. OR TAG No.

INDICATION CONTACTS S1-S4 ARE SHOWN IN THEIR DEFAULT CONFIGURATION. CONTACTS MAY BE CONFIGURED FOR ANY OF THE FUNCTIONS DESCRIBED IN E170E

Submission No.:	SUBMITTAL REVIEW	AECOM
Project No.: D265-234-00	Discipline:	
V Reviewed - No Comment	Reviewed - Revise and Resubmit	
Reviewed - As Noted	Review by Consultant Not Required	

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By: B Moore Date: April 24/09

No	DATE	REVISION DETAILS
06	301004 E01383	DIAGRAM RE-FORMATTED TO SEPERATE REMOTE CONTROL CIRCUITRY (See 'RWS' Ref)

www.rotork.com

ROTORK CONTROLS LTD
BATH, BA1 3JQ
ENGLAND
Tel:01225-733200

ROTORK CONTROLS INC
ROCHESTER
NY 14624, USA
Tel:585-328-1550

CONFIG BY PRE
DATE 081004
CHECKED PJW
BASE WD --
JOB No --
M.I.No .

IQ
SINGLE PHASE

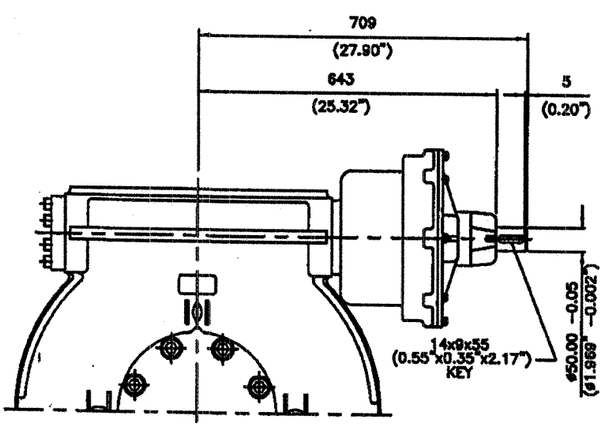
CIRCUIT DIAGRAM No -REV
3001-000-06
B1 C1 B2 C2

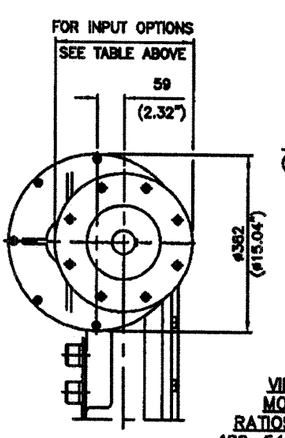
MAX BORE SQ KEY		
STD	BORE	KEY
BS4235	–	–
BS46	–	–
ANSI B17.1	17.375"	1.3/4"SQ

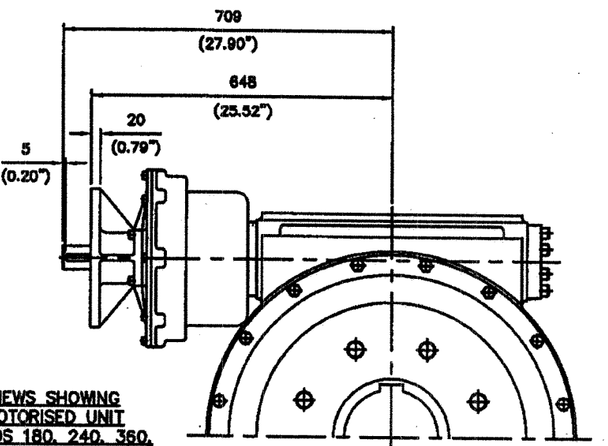
MAX BORE RECTANGULAR KEY		
STD	BORE	KEY
BS4235	203.0	50 x 28
BS46	7.625"	2" x 1.3/8"
ANSI B17.1	17.625"	2" x 1.1/2"

INPUT FLANGE DETAILS (RATIOS 180 TO 3000)						
	FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS
ISO F10	ø125 (ø4.92")	ø20.00 –0.05 (ø0.787" –0.002")	ø70.05 +0.15 (ø2.756" +0.006")	4 (0.16")	4 HOLES ø10.5 (ø0.41") ON ø102.0 (ø4.02") P.C.	8x8x40 (0.24"x0.24"x1.57")
FA10	ø125 (ø4.92")	ø20.00 –0.05 (ø0.787" –0.002")	ø58.70 +0.15 (ø2.311" +0.006")	4 (0.16")	4 HOLES ø10.5 (ø0.41") ON ø102.0 (ø4.02") P.C.	8x8x40 (0.24"x0.24"x1.57")
ISO F14	ø175 (ø6.89")	ø30.00 –0.05 (ø1.181" –0.002")	ø100.05 +0.15 (ø3.939" +0.006")	5 (0.20")	4 HOLES ø16.5 (ø0.65") ON ø140.0 (ø5.51") P.C.	8x7x55 (0.31"x0.28"x2.17")
FA14	ø175 (ø6.89")	ø30.00 –0.05 (ø1.181" –0.002")	ø95.25 +0.15 (ø3.750" +0.006")	5 (0.20")	4 HOLES ø16.5 (ø0.65") ON ø140.0 (ø5.51") P.C.	8x7x55 (0.31"x0.28"x2.17")
ISO F16	ø210 (ø8.27")	ø40.00 –0.05 (ø1.576" –0.002")	ø130.05 +0.15 (ø5.120" +0.006")	5 (0.20")	4 HOLES ø20.5 (ø0.81") ON ø165.0 (ø6.50") P.C.	12x8x55 (0.47"x0.31"x2.17")
FA16	ø210 (ø8.27")	ø40.00 –0.05 (ø1.576" –0.002")	ø125.92 +0.18 (ø4.957" +0.007")	5 (0.20")	4 HOLES ø20.5 (ø0.81") ON ø165.0 (ø6.50") P.C.	12x8x55 (0.47"x0.31"x2.17")
ISO F25	ø300 (ø11.81")	ø50.00 –0.05 (ø1.969" –0.002")	ø200.10 +0.10 (ø7.878" +0.004")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x55 (0.55"x0.35"x2.17")
FA25	ø300 (ø11.81")	ø50.00 –0.05 (ø1.969" –0.002")	ø152.30 +0.17 (ø5.996" +0.007")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x55 (0.55"x0.35"x2.17")

VIEW SHOWING HAND OPERATED UNIT
RATIOS 180, 240, 360, 480, 540, 720
960, 1080, 2160, 2520 & 3000



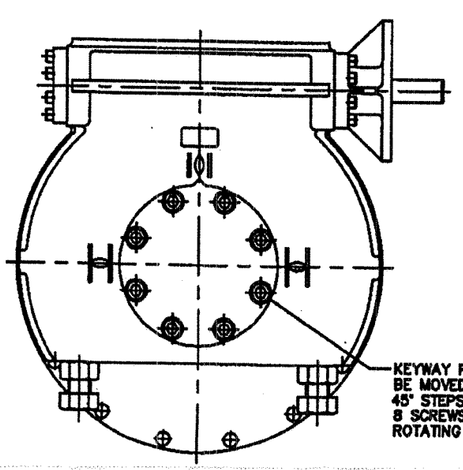


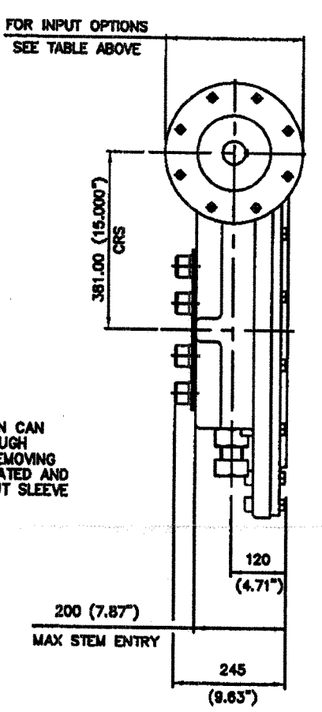


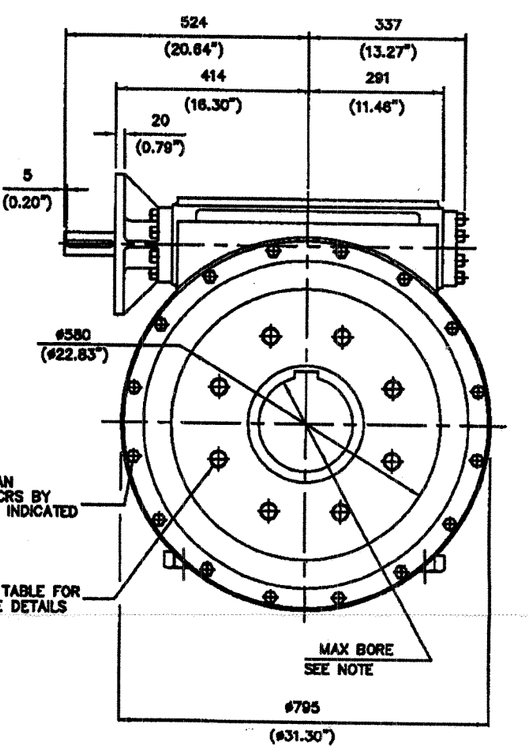
VIEWS SHOWING
MOTORISED UNIT
RATIOS 180, 240, 360,
480, 540, 720, 960, 1080,
1440, 2160, 2520 & 3000

INPUT FLANGE DETAILS (RATIO 60)						
	FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS
ISO F25	ø300 (ø11.81")	ø50.00 –0.05 (ø1.969" –0.002")	ø200.10 +0.05 (ø7.878" +0.002")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x100 (0.55"x0.35"x3.94")
FA25	ø300 (ø11.81")	ø50.00 –0.05 (ø1.969" –0.002")	ø152.30 +0.17 (ø5.996" +0.007")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x100 (0.55"x0.35"x3.94")
ISO F30	ø350 (ø13.78")	ø50.00 –0.05 (ø1.969" –0.002")	ø230.10 +0.10 (ø9.059" +0.004")	6 (0.24")	8 HOLES ø20.5 (ø0.81") ON ø298.0 (ø11.73") P.C.	14x9x100 (0.55"x0.35"x3.94")
ROTORK G30	ø418 (ø16.46")	ø50.00 –0.05 (ø1.969" –0.002")	ø216.10 +0.10 (ø8.508" +0.004")	6 (0.24")	8 HOLES ø23.0 (ø0.91") ON ø358.0 (ø14.02") P.C.	14x9x100 (0.55"x0.35"x3.94")

BASEPLATE DETAILS (ALL RATIOS) (ALTERNATIVES AVAILABLE ON REQUEST)	
	HOLE DETAILS (22.5° OFF CENTRES)
ISO F40	8 HOLES M36x36 (1.42") DEEP ON ø405.0 (ø15.98") P.C.
FA40	8 HOLES 1.25"UNCx36 (1.42") DEEP ON ø406.4 (ø16.00") P.C.







VIEWS SHOWING MOTORISED UNIT
RATIO 60 ONLY

rotork gears

ISSUE	ALTERATIONS	DRWN	CHKD	DATE
A	ORIGINAL ISSUE	DH	D.S.	28.07.00
B		DH	C.F.	12.10.04

DRAWN: S.W. 19.9.99
CHECKED:

OUTLINE DETAILS OF IW11
ISO & USA STANDARD

PUB\IW11CD

Submission No. : SUBMITTAL
Project No. : D265-234-00
Discipline :

- Reviewed - No Comment
- Reviewed - As Noted
- Reviewed - Revise and Resubmit
- Review by Consultant Not Required

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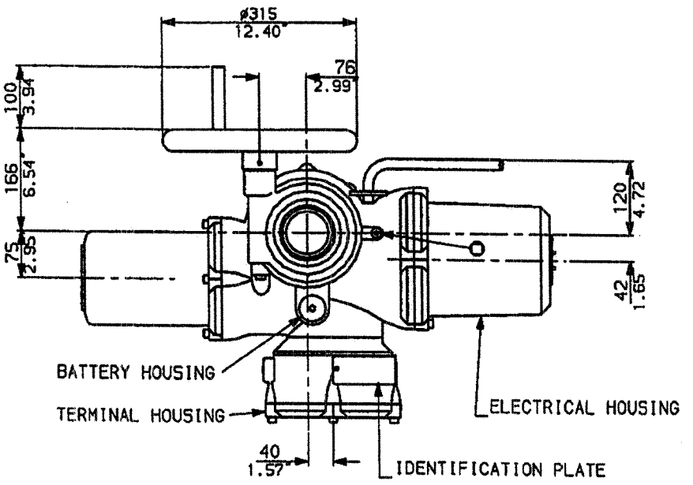
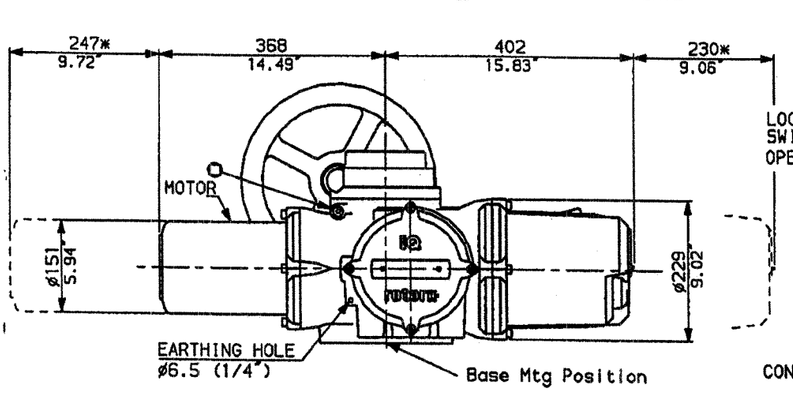
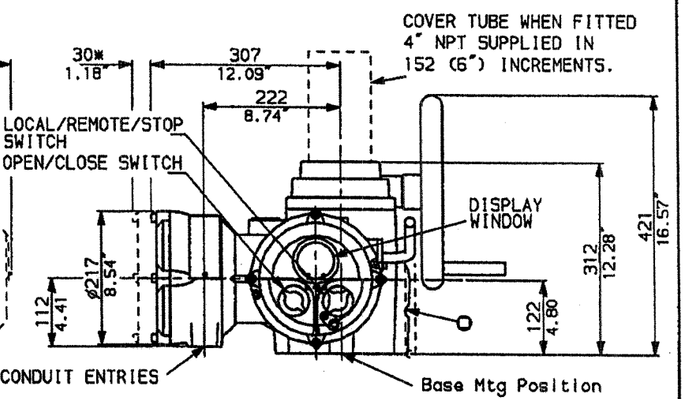
By: Date: Apr 24/09

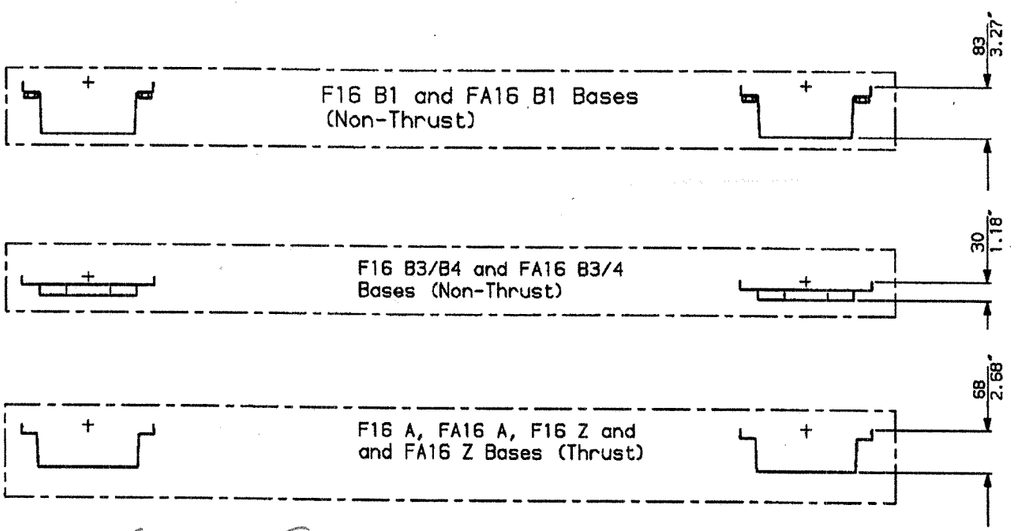
EXIST GEARBOX
FOR INFO ONLY

IQ35 WITH OPTIONAL SIDE HANDWHEEL



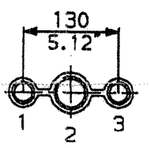






PROVIDE REMOTE FINAL STAND + MOUNTING DRAWING

CONDUIT ENTRIES



Nos.1 & 3 TAPPED 1" NPT
No.2 TAPPED 1 1/2" NPT
STANDARD ALTERNATIVES IF SPECIFIED
2 X M25,1 X M40
2 X PG16,1 X PG29

NOTES

Three BASE options are detailed to suit the relevant Coupling arrangement.
The required BASE for the SIDE & END views should be loaded to position indicated.

Submission No.:	SUBMITTAL REVIEW	AECOM
Project No.: D265-234-00	Discipline:	
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✓ Reviewed - As Noted	Review by Consultant Not Required	

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By: [signature] Date: April 2/09

rotork

IQ35(SHW) DATA
Date 011205 Scale 1:12

IQ_35S-3 A4

IQS20B4 WT actuator for existing IW11R1440 gearbox (ON-OFF service)

Max. rating	**actuator**	**100 Nm**	**74 Ft.lbs**
	combination	**57,154 Nm**	**42,180 Ft.lbs**
Weight	**actuator**	**46 Kg**	**101 lbs**
	combination	**350 Kg**	**775 lbs**
Actuator speed		**86 RPM**	
Operating time (combination)		**250 seconds**	
Max. bore	**actuator**	**30 mm**	**1-1/4"**
	gearbox	**203 mm**	**8"**
Voltage		**230 V / 1 ph / 60 Hz**	
Wiring diagram		**3001-000**	
Amperage	**rated torque**	**7.2 Amps**	
	locked rotor	**22 Amps**	

Submission No. : 1	SUBMITTAL REVIEW	AECOM
Project No. : D265-234-00	Discipline :	
Reviewed - No Comment	Reviewed - Revise and Resubmit	
Reviewed - As Noted	Review by Consultant Not Required	

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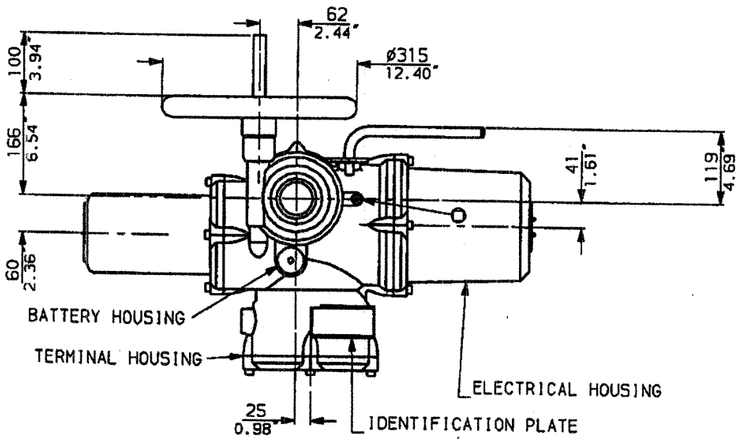
By : ——— Date : APR 24/09

IQ20-25 WITH OPTIONAL SIDE HANDWHEEL



Submission No.:	SUBMITTAL REVIEW	AECOM
Project No.: D265-234-00	Discipline:	
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Reviewed - As Noted	Review by Consultant Not Required	

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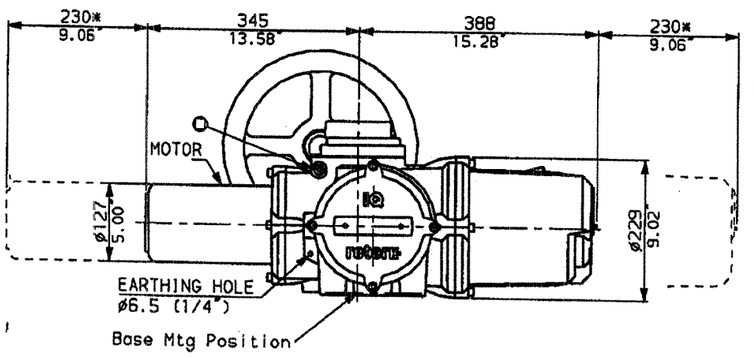
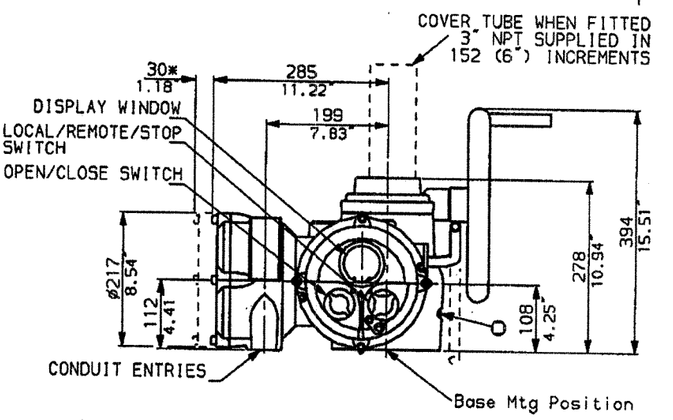
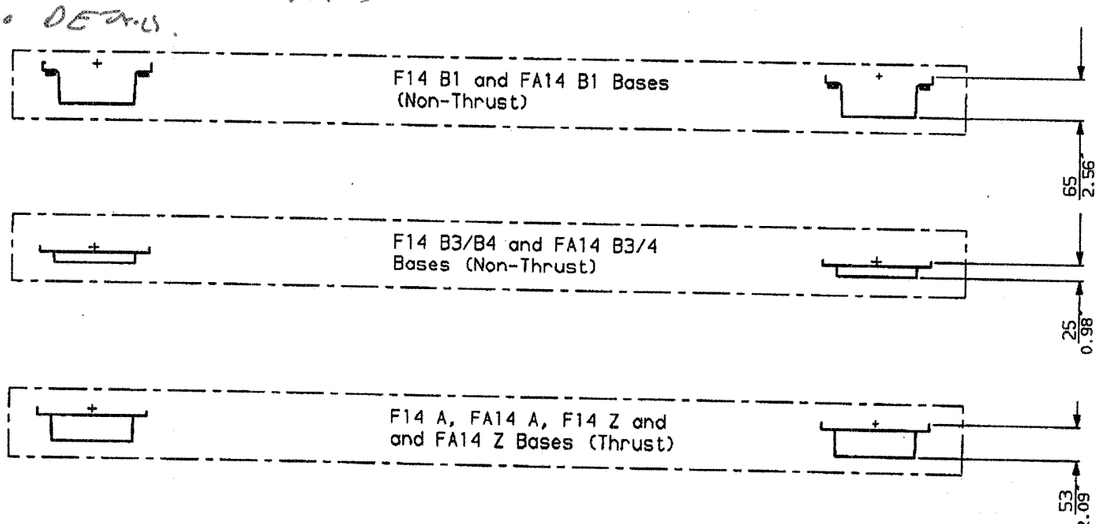
By: [signature] Date: Nov 28/07

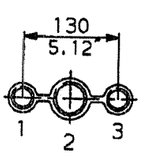




PROVIDE REMOTE KNEE STAND & MOUNTING DETAILS.



CONDUIT ENTRIES



Nos.1 & 3 TAPPED 1" NPT
No.2 TAPPED 1 1/2" NPT
STANDARD ALTERNATIVES IF SPECIFIED
2 X M25,1 X M40
2 X PG16,1 X PG29

NOTES

Three BASE options are detailed to suit the relevant Coupling arrangement.
The required BASE for the SIDE & END views should be loaded to position indicated.

rotork
Rotork Controls Ltd.
Bath, England BA1 3JQ
Bath (01225) 733200

IQ20 (SHW) DATA
Date 090500 Scale 1:12

Submission No.: 1	SUBMITTAL REVIEW	AECOM
Project No.: D265-234-00	Discipline:	
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By: — Date: Apr 20/09

INFO ONLY

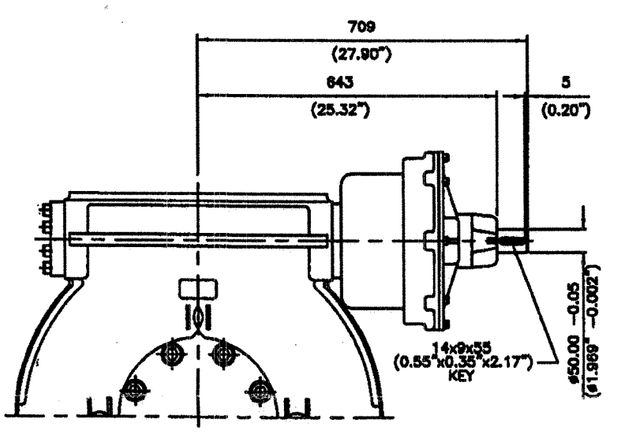
GEARBOX EXISTING

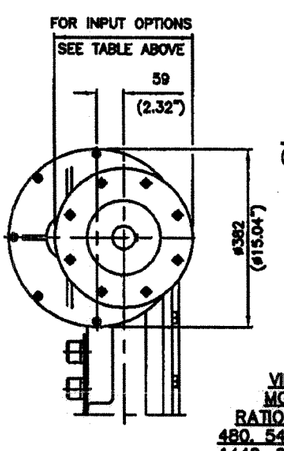
MAX BORE SQ KEY		
STD	BORE	KEY
BS4235	–	–
BS46	–	–
ANSI B17.1	7.375"	1.3/4"SQ

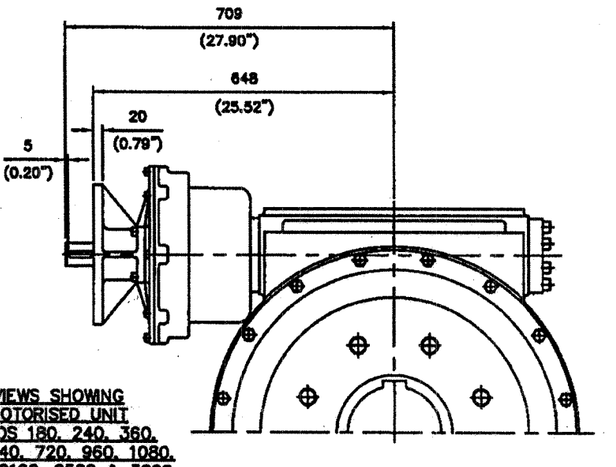
MAX BORE RECTANGULAR KEY		
STD	BORE	KEY
BS4235	203.0	50 x 28
BS46	7.625"	2" x 1.3/8"
ANSI B17.1	7.625"	2" x 1.1/2"

INPUT FLANGE DETAILS (RATIOS 180 TO 3000)						
	FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS
ISO F10	ø125 (ø4.92")	ø20.00 −0.05 (ø0.787" −0.002")	ø70.05 +0.15 (ø2.758" +0.006")	4 (0.16")	4 HOLES ø10.5 (ø0.41") ON ø102.0 (ø4.02") P.C.	6x6x40 (0.24"x0.24"x1.57")
FA10	ø125 (ø4.92")	ø20.00 −0.05 (ø0.787" −0.002")	ø58.70 +0.15 (ø2.311" +0.006")	4 (0.16")	4 HOLES ø10.5 (ø0.41") ON ø102.0 (ø4.02") P.C.	6x6x40 (0.24"x0.24"x1.57")
ISO F14	ø175 (ø6.89")	ø30.00 −0.05 (ø1.181" −0.002")	ø100.05 +0.15 (ø3.939" +0.006")	5 (0.20")	4 HOLES ø16.5 (ø0.65") ON ø140.0 (ø5.51") P.C.	8x7x55 (0.31"x0.28"x2.17")
FA14	ø175 (ø6.89")	ø30.00 −0.05 (ø1.181" −0.002")	ø95.25 +0.15 (ø3.750" +0.006")	5 (0.20")	4 HOLES ø16.5 (ø0.65") ON ø140.0 (ø5.51") P.C.	8x7x55 (0.31"x0.28"x2.17")
ISO F16	ø210 (ø8.27")	ø40.00 −0.05 (ø1.575" −0.002")	ø130.05 +0.15 (ø5.120" +0.006")	5 (0.20")	4 HOLES ø20.5 (ø0.81") ON ø165.0 (ø6.50") P.C.	12x8x55 (0.47"x0.31"x2.17")
FA16	ø210 (ø8.27")	ø40.00 −0.05 (ø1.575" −0.002")	ø125.92 +0.18 (ø4.997" +0.007")	5 (0.20")	4 HOLES ø20.5 (ø0.81") ON ø165.0 (ø6.50") P.C.	12x8x55 (0.47"x0.31"x2.17")
ISO F25	ø300 (ø11.81")	ø50.00 −0.05 (ø1.968" −0.002")	ø200.10 +0.10 (ø7.878" +0.004")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x55 (0.55"x0.35"x2.17")
FA25	ø300 (ø11.81")	ø50.00 −0.05 (ø1.968" −0.002")	ø152.30 +0.17 (ø5.996" +0.007")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x55 (0.55"x0.35"x2.17")

VIEW SHOWING HAND OPERATED UNIT
RATIOS 180, 240, 360, 480, 540, 720
960, 1080, 2160, 2520 & 3000



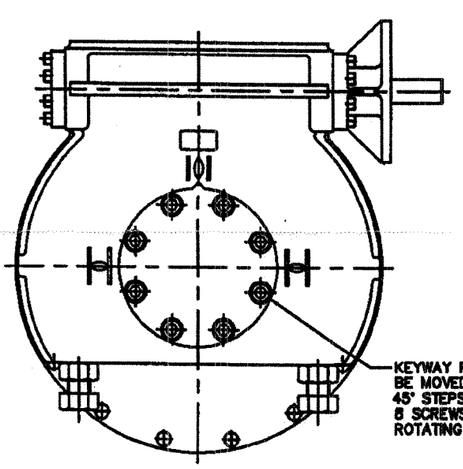


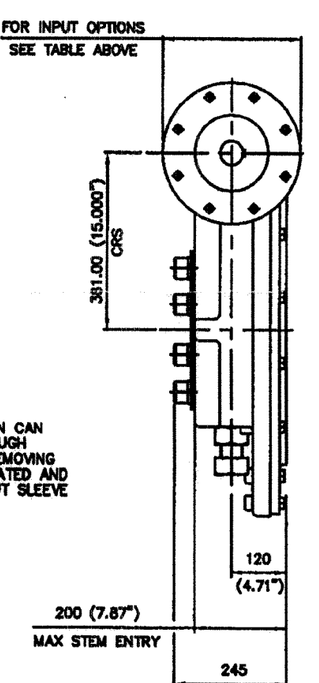


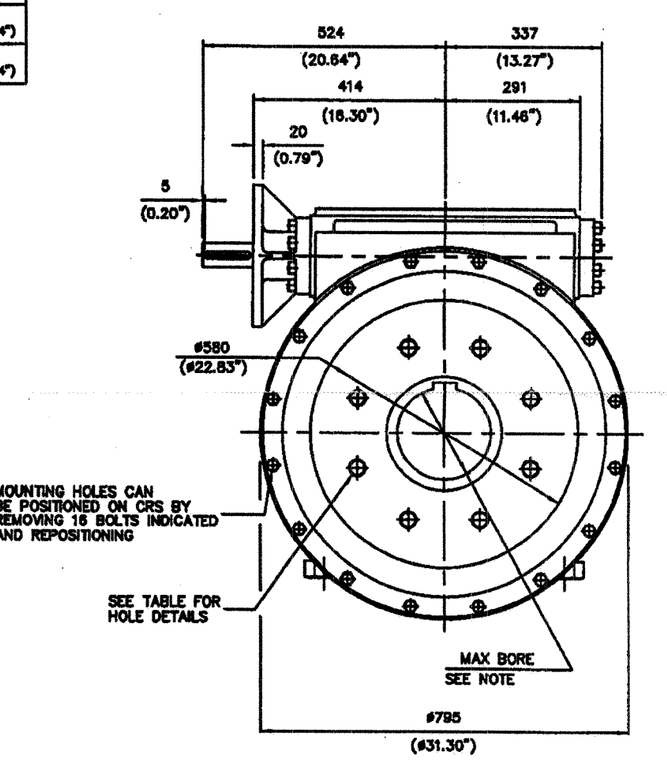
VIEWS SHOWING
MOTORISED UNIT
RATIOS 180, 240, 360,
480, 540, 720, 960, 1080,
1440, 2160, 2520 & 3000

INPUT FLANGE DETAILS (RATIO 60)						
	FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS
ISO F25	ø300 (ø11.81")	ø50.00 −0.05 (ø1.968" −0.002")	ø200.10 +0.05 (ø7.878" +0.002")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x100 (0.55"x0.35"x3.94")
FA25	ø300 (ø11.81")	ø50.00 −0.05 (ø1.968" −0.002")	ø152.30 +0.17 (ø5.996" +0.007")	5 (0.20")	8 HOLES ø16.5 (ø0.65") ON ø254.0 (ø10.00") P.C.	14x9x100 (0.55"x0.35"x3.94")
ISO F30	ø350 (ø13.78")	ø60.00 −0.05 (ø1.968" −0.002")	ø230.10 +0.10 (ø9.059" +0.004")	6 (0.24")	8 HOLES ø20.5 (ø0.81") ON ø298.0 (ø11.73") P.C.	14x9x100 (0.55"x0.35"x3.94")
ROTORK G30	ø418 (ø16.46")	ø60.00 −0.05 (ø1.968" −0.002")	ø218.10 +0.10 (ø8.909" +0.004")	6 (0.24")	8 HOLES ø23.0 (ø0.91") ON ø356.0 (ø14.02") P.C.	14x9x100 (0.55"x0.35"x3.94")

BASEPLATE DETAILS (ALL RATIOS) (ALTERNATIVES AVAILABLE ON REQUEST)	
	HOLE DETAILS (22.5° OFF CENTRES)
ISO F40	8 HOLES M36x36 (1.42") DEEP ON ø408.0 (ø15.98") P.C.
FA40	8 HOLES 1.25"UNCx36 (1.42") DEEP ON ø408.4 (ø16.00") P.C.





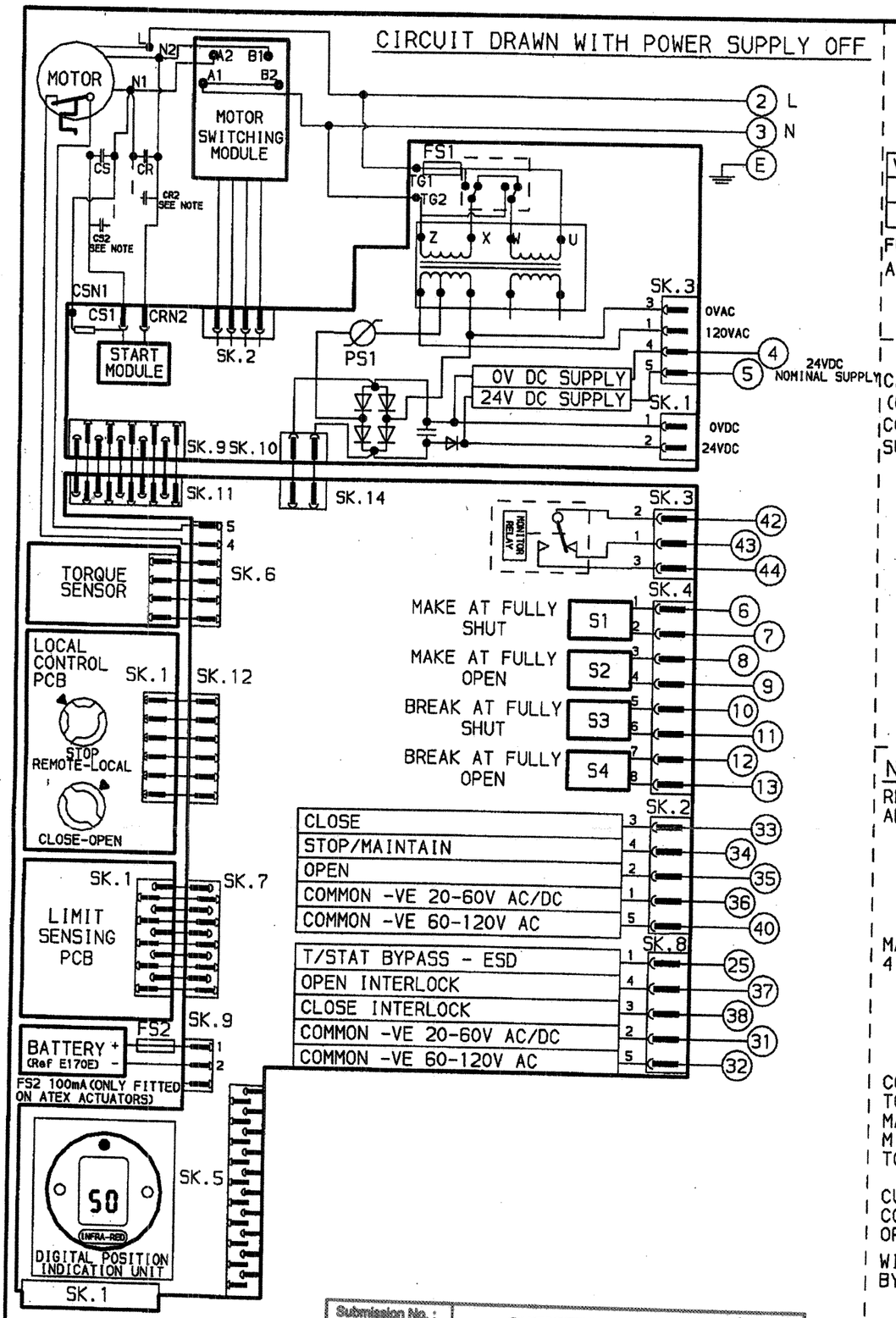


VIEWS SHOWING MOTORISED UNIT
RATIO 60 ONLY

rotork gears

ISSUE	ALTERATIONS	
4	ORIGINAL ISSUE	
1	ORI230 D.S. 25/07/03	
2	ORI896 C.F. 12/10/04	

DRAWN: S.W. 19.9.96	OUTLINE DETAILS OF IW11 ISO & USA STANDARD	PUB\IW11CD
CHECKED:		



FOR TYPICAL REMOTE CONTROL DETAILS SEE DOCUMENT
RWS300

TRANSFORMER TAPPING OPTIONS

VOLTAGE	50HZ	60HZ
LOW	92-135	92-135
HIGH	184-270	184-270

FUSE FS1 - 500mA ANTI-SURGE
ALL TRANSFORMER TYPES - PS1 SELF RESETTING FUSE

CAPACITOR START/RUN (CS/CS2 and CR/CR2) COMBINATIONS & VALUES VARY WITH SUPPLY VOLTAGE & ACTUATOR SIZE.

NOTE

REFER TO PUBLICATION E170E FOR APPROVED FUSES FS1 AND FS2.

MAX EXTERNAL LOAD ON TERMINALS 4 & 5 TO BE 5W.

CONTROL SIGNAL THRESHOLD VOLTAGES
TO BE MINIMUM 'ON' 20V AC/DC
MAXIMUM 'OFF'= 3V
MINIMUM CONTROL SIGNAL DURATION TO BE 300mS.

CURRENT DRAWN FROM EACH REMOTE CONTROL SIGNAL IS 5mA ON 24V DC OR 12mA ON 120V AC

WIRES ARE IDENTIFIED AT EACH END BY TERMINAL No. OR TAG No.

INDICATION CONTACTS S1-S4 ARE SHOWN IN THEIR DEFAULT CONFIGURATION. CONTACTS MAY BE CONFIGURED FOR ANY OF THE FUNCTIONS DESCRIBED IN E170E

Submission No.:	SUBMITTAL REVIEW	AECOM
Project No.: D265-234-00	Discipline:	
☑ Reviewed - No Comment	Reviewed - Revise and Resubmit	
☐ Reviewed - As Noted	Review by Consultant Not Required	

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By: B Moon Date: Apr 24/09

No	DATE	REVISION DETAILS
06	301004 081209	DIAGRAM RE-FORMATTED TO SEPERATE REMOTE CONTROL CIRCUITRY (See 'RWS' Ref)

www.rotork.com

ROTORK CONTROLS LTD
BATH, BA1 3JQ
ENGLAND
Tel:01225-733200

ROTORK CONTROLS INC
ROCHESTER
NY 14624, USA
Tel:585-328-1550

CONFIG BY PRE
DATE 081004
CHECKED PJW
BASE WD --
JOB No --
M.I.No .

IQ
SINGLE PHASE

CIRCUIT DIAGRAM No -REV 02
3001-000-06
B1 C1 B2 C2

IQ20B4 WT actuator c/w IW9R960 gearbox (ON-OFF service)

Max. rating	**actuator**	**142 Nm**	**105 Ft.lbs**
	combination	**54,065 Nm**	**39,900 Ft.lbs**
Weight	**actuator**	**46 Kg**	**101 lbs**
	combination	**342 Kg**	**752 lbs**
Actuator speed		**115 RPM**	
Operating time (combination)		**125 seconds**	
Max. bore	**actuator**	**30 mm**	**1-1/4"**
	gearbox	**178 mm**	**7"**
Voltage		**575 V / 3 ph / 60 Hz**	
Wiring diagram		**3000-000**	
Amperage	**rated torque**	**3.8 Amps**	
	locked rotor	**15.5 Amps**	
Gearbox	**ratio**	**960**	
	mech. advantage	**380**	
Gearbox paint		**two coats polyamide epoxy paint Amerlock 400**	

PROVIDE ACTUATOR MOUNTING DETAILS INCL ADAPTOR PLATES, INPUT & OUTPUT SHAFT DIA's

Submission No.: 1	SUBMITTAL REVIEW — AECOM
Project No.: D265-234-00	Discipline:
Reviewed - No Comment	Reviewed - Revise and Resubmit
Reviewed - As Noted	Review by Consultant Not Required

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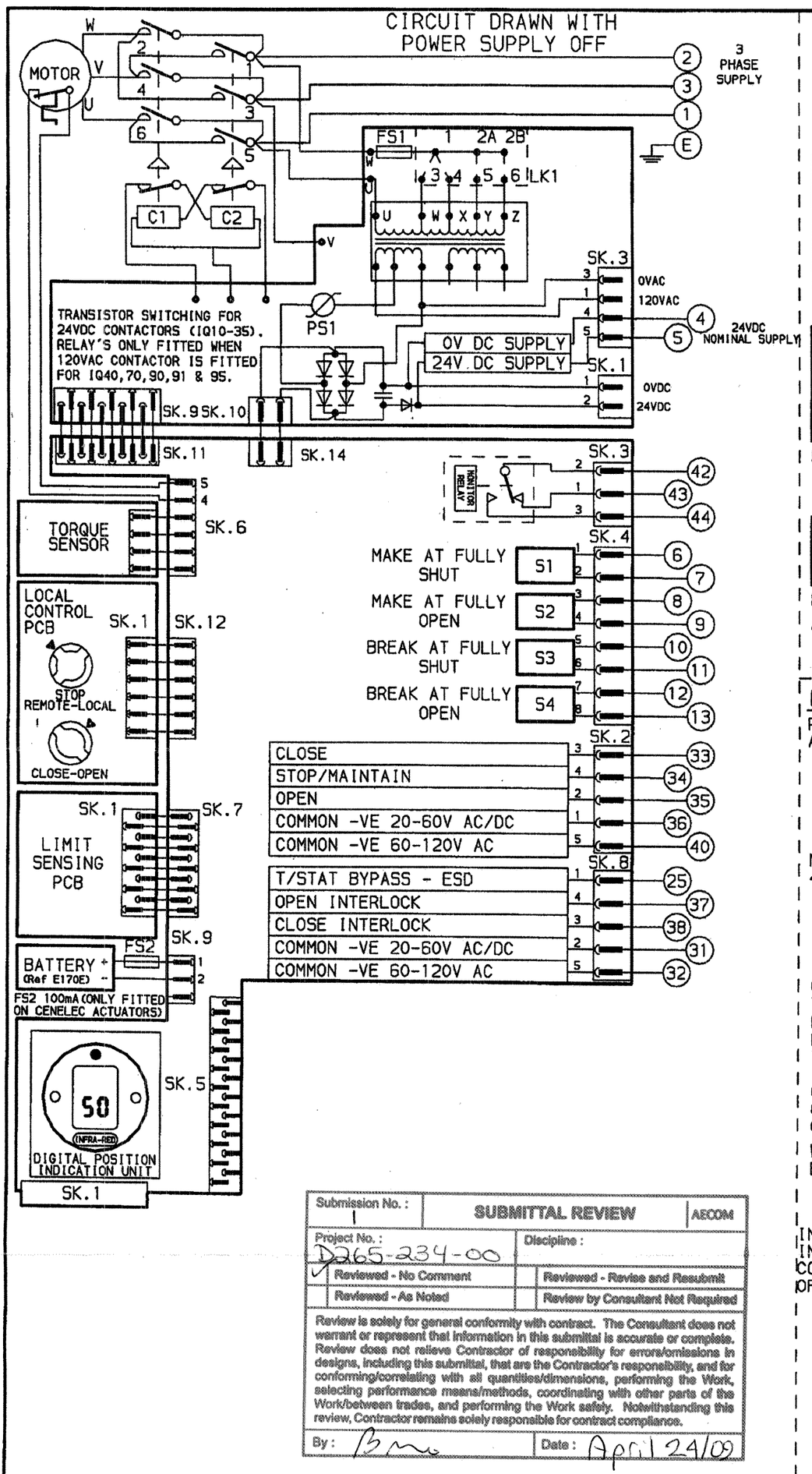
By:



FOR TYPICAL REMOTE CONTROL DETAILS SEE DOCUMENT RWS300

TRANSFORMER TAPPING OPTIONS

TYPE 1

TAP	NOM 50/60HZ	50HZ	60HZ
W	220/230	176-242	198-259
X	380/400	304-418	342-446
Y	415/420	332-457	374-487
Z	440/460	352-484	396-517

FUSE FS1 - 250mA ANTI-SURGE

TYPE 2

TAP	NOM 50/60HZ	50HZ	60HZ
W	346/380	285-388	321-419
X	480/500	406-552	432-564
Y	240/240	192-261	216-282
Z	550/575	445-605	501-654

FUSE FS1 - 250mA ANTI-SURGE

TYPE 3

TAP	NOM 50/60HZ	50HZ	60HZ
X	660/660-690	534-726	600-726
Y	690/___	558-759	

FUSE FS1 - 150mA ANTI-SURGE

ALL TRANSFORMER TYPES - PS1 SELF RESETTING FUSE

NOTE

REFER TO PUBLICATION E170E FOR APPROVED FUSES FS1 AND FS2.

MAX EXTERNAL LOAD ON TERMINALS 4 & 5 TO BE 5W.

CONTROL SIGNAL THRESHOLD VOLTAGES TO BE MINIMUM 'ON' 20V AC/DC
MAXIMUM 'OFF'= 3V
MINIMUM CONTROL SIGNAL DURATION TO BE 300mS.

CURRENT DRAWN FROM EACH REMOTE CONTROL SIGNAL IS 5mA ON 24V DC OR 12mA ON 120V AC

WIRES ARE IDENTIFIED AT EACH END BY TERMINAL No. OR TAG No.

INDICATION CONTACTS S1-S4 ARE SHOWN IN THEIR DEFAULT CONFIGURATION. CONTACTS MAY BE CONFIGURED FOR ANY OF THE FUNCTIONS DESCRIBED IN E170E

Submission No. :	SUBMITTAL REVIEW	AECOM
Project No. : D265-234-00	Discipline :	
✓ Reviewed - No Comment	Reviewed - Revise and Resubmit	
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By: B Mc | Date: April 24/09

No	DATE	REVISION DETAILS
08	300503 EC1383	DIAGRAM RE-FORMATTED TO SEPERATE REMOTE CONTROL CIRCUITRY (See 'RWS' Ref)

www.rotork.com

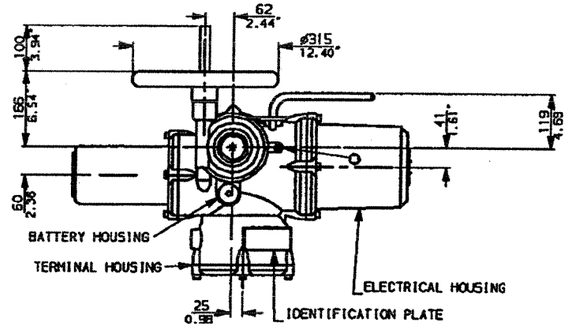
ROTORK CONTROLS LTD
BATH, BA1 3JQ
ENGLAND
Tel:01225-733200

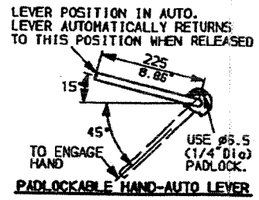
ROTORK CONTROLS INC
ROCHESTER
NY 14624, USA
Tel:585-328-1550

CONFIG BY PRE
DATE 240904
CHECKED PJW
BASE WD --
JOB No --
M.I.No .

IQ BASIC

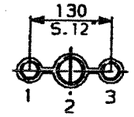
CIRCUIT DIAGRAM No -REV 102
3000-000-08
B1 C1 B2 C2





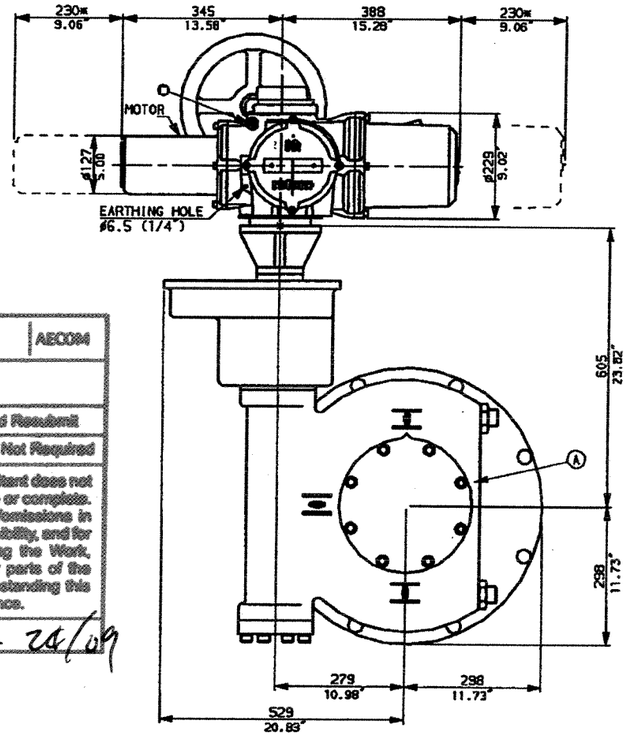
NOTES:
- DIMENSIONS WITH '*' INDICATE COVER REMOVAL ALLOWANCE
- NETT WEIGHT = 342kg (752lbs)
- ⬭ = OIL FILLER/DRAIN PLUG
- THE INTERFACE PROVIDED FOR MOUNTING THE ACTUATOR OR SECOND STAGE GEARBOX ONTO THE VALVE SHOULD CONFORM TO GOOD ENGINEERING PRACTICES, ENSURING ADEQUATELY TOLERANCED LIMITS FOR PARALLELISH, PERPENDICULARITY AND CONCENTRICITY.

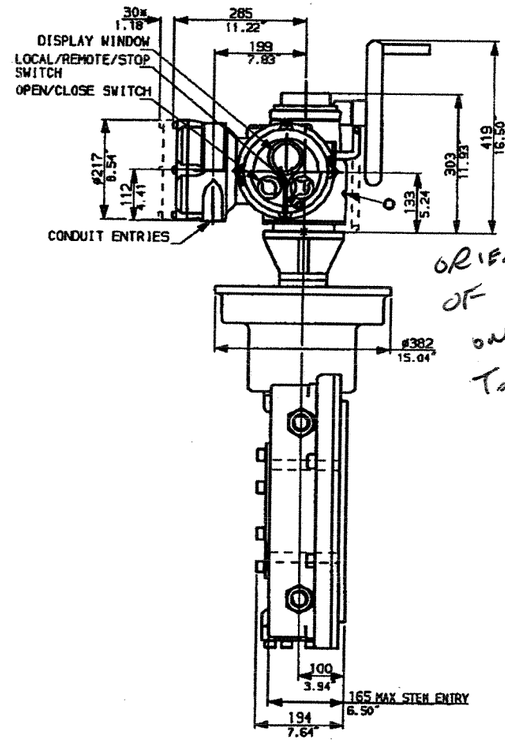
CONDUIT ENTRIES (N.T.S)



Nos.1 & 3 TAPPED 1" NPT
No.2 TAPPED 1 1/2" NPT
STD ALTERNATIVES IF SPECIFIED
2 X M25, 1 X M40
2 X PG16, 1 X PG29

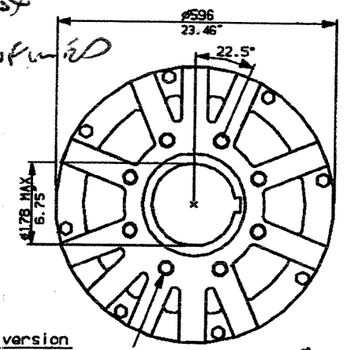
316SS Valve Position Indicator
to be fabricated by Mueller Flow Control





ORIENTATION OF ACTUATOR ON GEARBOX TO BE CONFIRMED

N.B. KEYWAY POS. CAN BE MOVED IN 45° STEPS BY REMOVING 8 SCREWS MARKED Ⓐ AND ROTATING OUTPUT SLEEVE.



"F" version
8 HOLES TAPPED M20 x 30 DP
EQUI-SPACED AS SHOWN ON A
298 PCD (ISO 5211-F30).

"FA" version
8 HOLES TAPPED 3/4"UNCx1.18"dp
EQUI-SPACED AS SHOWN ON A
11.75" PCD (MSS SP101-FA30).

CONFIRM E+ SHAFT DIA'S + KEY PROFILE TO FXB.

Submission No.: 1	SUBMITTAL REVIEW — AECOM
Project No.: D265-234-00	Discipline:
Reviewed - No Comment	Reviewed - Revise and Resubmit
Reviewed - As Noted	Review by Consultant Not Required

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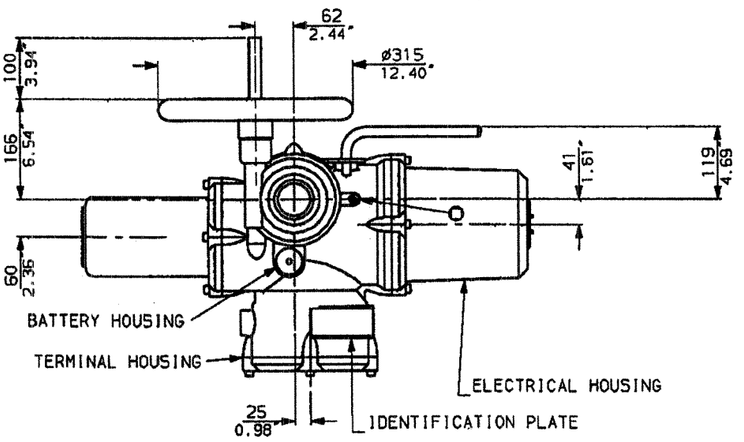
By: [illegible] Date: April 24/09

rotork www.rotork.com	Rotork Controls Ltd. Bath England, BA1 3JQ. (Phone 01225-733200) Rotork Controls Inc. Rochester, NY 14624 (Phone 585-328-1550)	Title: IQ20, 2S(+IQS20), SHW, IW(MOW)9Rh, STANDARD DIMENSIONAL DATA Drawn CAD Checked PRE Ref Data Sheet Date April 04 Job No IQ2SHW_IW9Rh

NOTE:
Gearbox is shown with HIGH Ratio Input Reducer.
(ie Ratios 960, 1080, 1440, 2160, 2520, 3000)
See Data Sheet with IW9RL for LOW ratio option.

01 Issue	First Issue.
Scale 1:8	THIRD ANGLE PROJECTION
Drawing Number	IQ2SHW_IW9Rh 1

IQ20-25 WITH OPTIONAL SIDE HANDWHEEL



Submission No.:	SUBMITTAL REVIEW	AECOM
Project No.: D265-234-00	Discipline:	
Reviewed - No Comment	Reviewed - Revise and Resubmit	
Reviewed - As Noted	Review by Consultant Not Required	

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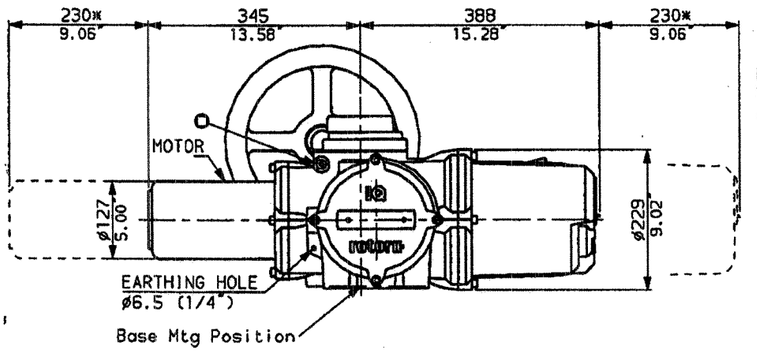
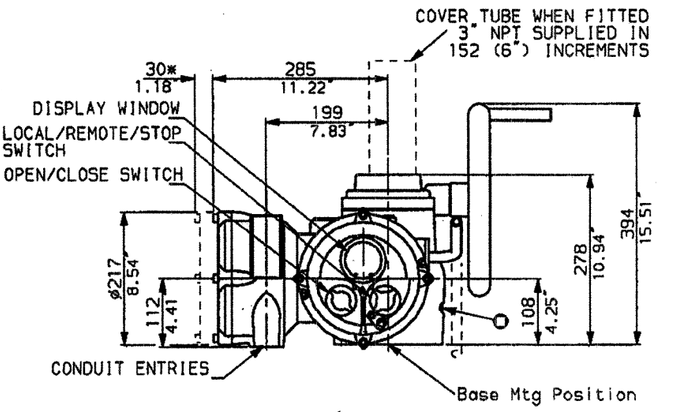
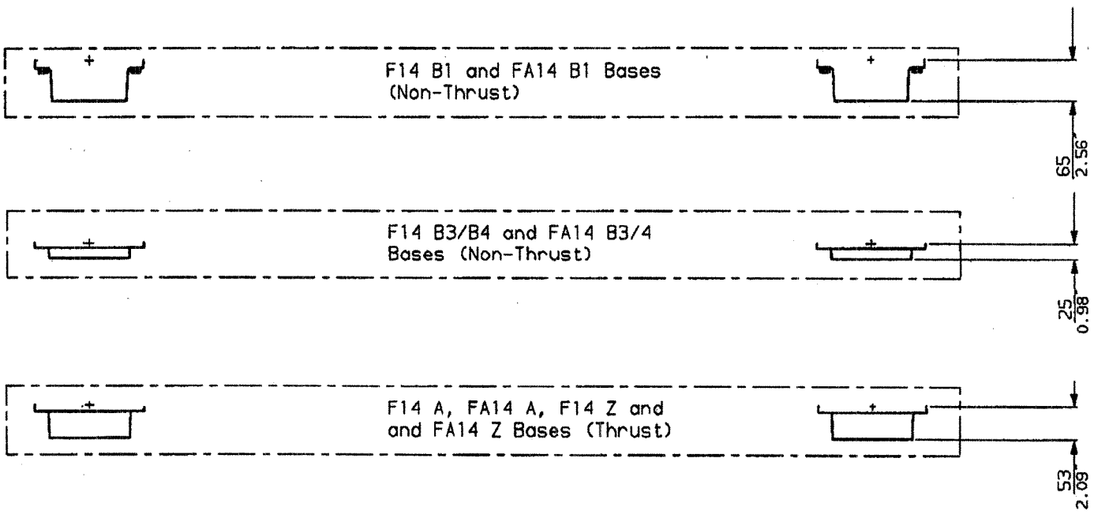
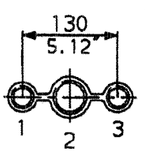
By: — Date: Apr 28/09







CONDUIT ENTRIES



Nos.1 & 3 TAPPED 1" NPT
No.2 TAPPED 1 1/2" NPT
STANDARD ALTERNATIVES IF SPECIFIED
2 X M25, 1 X M40
2 X PG16, 1 X PG29

NOTES

Three BASE options are detailed to suit the relevant Coupling arrangement.
The required BASE for the SIDE & END views should be loaded to position indicated.

rotork

Rotork Controls Ltd.
Bath, England BA1 3JQ
Bath (01225) 733200

IQ20(SHW) DATA

Date 090500 Scale 1:12

IQ_20S-2

Submission No.: 1	SUBMITTAL REVIEW	AECOM
Project No.: 13365-334-00	Disciplins :	
Reviewed - No Comment	Reviewed - Revise and Resubmit	
Reviewed - As Noted	Review by Consultant Not Required	

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By: [signature] Date: Apr 24/09

INPUT FLANGE DETAILS (RATIOS 180 TO 3000)

	FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS
ISO F10	Ø125 (Ø4.92")	Ø20.00 –0.05 (Ø0.787" –0.002")	Ø70.05 +0.15 (Ø2.756" +0.006")	4 (0.16")	4 HOLES Ø10.5 (Ø0.41") ON Ø102.0 (Ø4.02") P.C.	6x6x40 (0.24"x0.24"x1.57")
FA10	Ø125 (Ø4.92")	Ø20.00 –0.05 (Ø0.787" –0.002")	Ø58.70 +0.15 (Ø2.311" +0.006")	4 (0.16")	4 HOLES Ø10.5 (Ø0.41") ON Ø102.0 (Ø4.02") P.C.	6x6x40 (0.24"x0.24"x1.57")
ISO F14	Ø175 (Ø6.89")	Ø30.00 –0.05 (Ø1.181" –0.002")	Ø100.05 +0.15 (Ø3.939" +0.006")	5 (0.20")	4 HOLES Ø16.5 (Ø0.65") ON Ø140.0 (Ø5.51") P.C.	8x7x56 (0.31"x0.28"x2.17")
FA14	Ø175 (Ø6.89")	Ø30.00 –0.05 (Ø1.181" –0.002")	Ø95.25 +0.15 (Ø3.750" +0.006")	5 (0.20")	4 HOLES Ø16.5 (Ø0.65") ON Ø140.0 (Ø5.51") P.C.	8x7x56 (0.31"x0.28"x2.17")
ISO F16	Ø210 (Ø8.27")	Ø40.00 –0.05 (Ø1.575" –0.002")	Ø130.05 +0.15 (Ø5.120" +0.006")	5 (0.20")	4 HOLES Ø20.5 (Ø0.81") ON Ø165.0 (Ø6.50") P.C.	12x8x70 (0.47"x0.31"x2.17")
FA16	Ø210 (Ø8.27")	Ø40.00 –0.05 (Ø1.575" –0.002")	Ø128.62 +0.18 (Ø4.997" +0.007")	5 (0.20")	4 HOLES Ø20.5 (Ø0.81") ON Ø165.0 (Ø6.50") P.C.	12x8x56 (0.47"x0.31"x2.17")
ISO F25	Ø300 (Ø11.81")	Ø60.00 –0.05 (Ø1.969" –0.002")	Ø200.10 +0.10 (Ø7.878" +0.004")	8 (0.20")	8 HOLES Ø16.5 (Ø0.65") ON Ø254.0 (Ø10.00") P.C.	14x9x56 (0.55"x0.35"x2.17")
FA25	Ø300 (Ø11.81")	Ø60.00 –0.05 (Ø1.969" –0.002")	Ø152.30 +0.17 (Ø6.998" +0.007")	8 (0.20")	8 HOLES Ø16.5 (Ø0.65") ON Ø254.0 (Ø10.00") P.C.	14x9x56 (0.55"x0.35"x2.17")

INPUT FLANGE DETAILS (RATIO 60)

	FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS
ISO F16	Ø210 (Ø8.27")	Ø40.00 –0.05 (Ø1.575" –0.002")	Ø130.05 +0.15 (Ø5.120" +0.006")	5 (0.20")	4 HOLES Ø20.5 (Ø0.81") ON Ø165.0 (Ø6.50") P.C.	12x8x100 (0.47"x0.31"x3.94")
FA16	Ø210 (Ø8.27")	Ø40.00 –0.05 (Ø1.575" –0.002")	Ø128.62 +0.18 (Ø4.997" +0.007")	5 (0.20")	4 HOLES Ø20.5 (Ø0.81") ON Ø165.0 (Ø6.50") P.C.	12x8x100 (0.47"x0.31"x3.94")
ISO F25	Ø300 (Ø11.81")	Ø60.00 –0.05 (Ø1.969" –0.002")	Ø200.10 +0.10 (Ø7.878" +0.004")	5 (0.20")	8 HOLES Ø16.5 (Ø0.65") ON Ø254.0 (Ø10.00") P.C.	14x9x100 (0.55"x0.35"x3.94")
FA25	Ø300 (Ø11.81")	Ø60.00 –0.05 (Ø1.969" –0.002")	Ø152.30 +0.17 (Ø6.998" +0.007")	5 (0.20")	8 HOLES Ø16.5 (Ø0.65") ON Ø254.0 (Ø10.00") P.C.	14x9x100 (0.55"x0.35"x3.94")

MAX BORE SQ KEY		MAX BORE RECTANGULAR KEY	
STD	BORE KEY	STD	BORE KEY
BS4235	170.00 25 x 14	BS4235	170.00 45 x 25
BS436	200.00 30 x 16	BS436	200.00 56 x 32
BS46	254.00 40 x 22	BS46	254.00 70 x 40
ANSI B17/1	6.50" 1.1/2" SQ	ANSI B17/1	6.50" 1.1/2" x 1"

ITEM	ALTERATIONS	DRAWN	CHECKED
4	CHG'D C.R. 17.9.04		
3	CHG'D C.R. 11.8.04		
2	CHG'D S.M. 30.7.04		
1	CHG'D S.M. 22.1.04		
A	ORIGINAL ISSUE		

DRAWN: S.W. 19.9.96 | CHECKED:

OUTLINE DETAILS OF IW9
ISO & USA STANDARD

PUB\IW9CD

VERIFY SHAFT DIA & KEYWAY

rotork gears