



Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITTAL

July 16, 2012

WCM Submittal No: 02641-006

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **Municipal Treatment Equipment , Inc.**
17301 W Colfax Ave, #105
Golden, CO 80401
303-231-9175 Tim Rice

SUBJECT: Dezuik Plug Valves and Rotork Electric Actuators

SPEC SECTION: 02641 Valves and Accessories

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES x NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Date: 7/16/12

Reviewed by: Ronny Burst

(X) Reviewed Without Comments

() Reviewed With Comments

Engineer's Stamp:

ENGINEER'S
COMMENTS: _____

HAROLD D THOMPSON WWTP – FOUNTAIN, CO

SUBMITTAL

EQUIPMENT

Dezurik Plug Valves with Rotork Electric Actuators

CONTRACTOR

Weaver General Construction
3679 S. Huron St., Ste. 404
Englewood, CO 80110
303-789-4111

SUPPLIER

Municipal Treatment Equipment
17301 W. Colfax Ave., #105
Golden, CO 80401
303-231-9175

HAROLD D THOMPSON WWTP – FOUNTAIN, CO

SUBMITTAL

EQUIPMENT

Dezurik Plug Valves with Rotork Electric Actuators

**FOR ASSISTANCE WITH TECHNICAL QUESTIONS,
PARTS OR SERVICE ON ALL ITEMS
COVERED IN THIS SUBMITTAL,
PLEASE CONTACT:**

Bob Hoss, Murray McCaig,
Chuck Thenell, or Darrin Koch

Municipal Treatment Equipment
17301 W. Colfax Ave., #105
Golden, CO 80401
Phone: 303-231-9175
Fax: 303-231-0964

HAROLD D THOMPSON WWTP – FOUNTAIN, CO

SUBMITTAL

EQUIPMENT

Dezurik Plug Valves with Rotork Electric Actuators

BILL OF MATERIALS

<u>QTY.</u>	<u>DESCRIPTION</u>
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3 ea.	4" Dezurik PEC Plug Valves with Rotork IQTM250FA10 Modulating Electric Actuators
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Dezurik Submittal Data Sheet

ITEM	QTY	DESCRIPTION
1	3	PEC, 4, F1, CI, NBR, CR, 1304G0, *Rotork
Style	PEC	Dezurik Eccentric Plug Valve, Rectangular Port
Size	4	4 Inch, SS Bearings, Welded-In Nickel Seat
End Connection	F1	Flanged, Drilled to ANSI 125/150
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, Temp -20 to 250° F.
Plug Facing	CR	Chloroprene, Temp -20 to 180° F.
Pressure Rating		175 psig
Modifier	1304G0	See Paint Description Below
Act Type	Rotork	Rotork IQTM250FA Electric Modulating Actuator

*** **FEATURES.** ***

INTERIOR SURFACES: 8 MILS MINIMUM OF BLUE EPOXY
 TNEMEC 141 WITH STANDARD (SP10 SURFACE PREPARATION)
EXTERIOR SURFACES: 3 MILS MINIMUM OF BLUE DEZURIK
 ENAMEL WITH STANDARD (SP10 SURFACE PREPARATION)

*** **DRAWINGS.** ***

Dimensions	A46423
Cross Section	A20730
Actuator	See Rotork Information

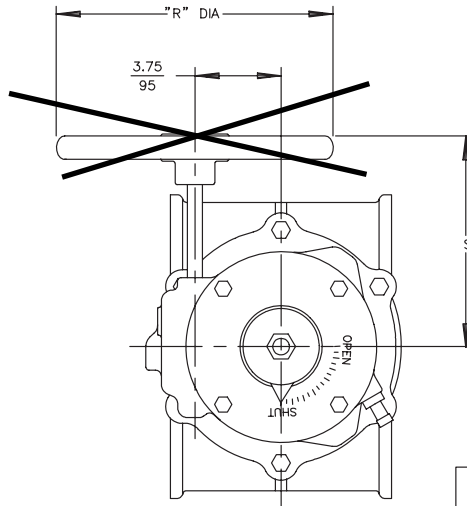
VALVE SIZE		DIMENSIONS										
INCH	MM	INCHES MILLIMETERS										
		A	B	C	D	E	F	G	H	J	K	L
4	100	.69 18	9.00 229	5.38 137	7.50 191	NONE	NONE	NONE	.75 19	8	9.62 244	13.27 337
5	125	.75 19	10.50 267	6.50 165	8.50 216	3/4-10UNC	4	1.00 25	.88 22	4	11.81 300	15.46 393
6	150	.75 19	10.50 267	6.50 165	9.50 241	NONE	NONE	NONE	.88 22	8	11.81 300	15.46 393
8	200	.81 21	11.50 292	8.25 210	11.75 298	3/4-10UNC	4	.81 21	.88 22	4	13.63 346	17.28 439
10	250	.88 22	13.00 330	10.28 261	14.25 362	7/8-9UNC	4	.88 22	1.00 25	8	15.12 384	18.77 477
12	300	.94 24	14.00 356	11.69 297	17.00 432	7/8-9UNC	4	.94 24	1.00 25	8	16.75 425	20.40 518

A	VALVE
B	ACTUATOR

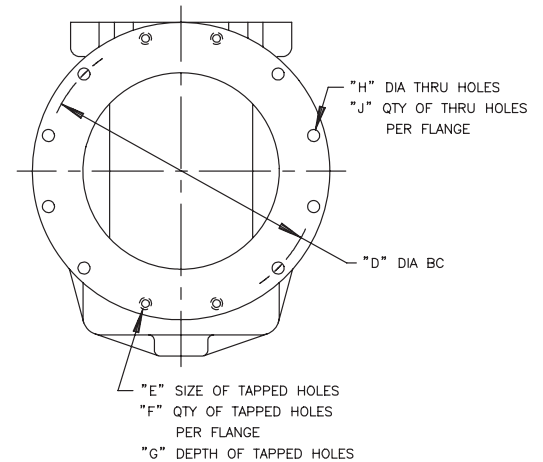
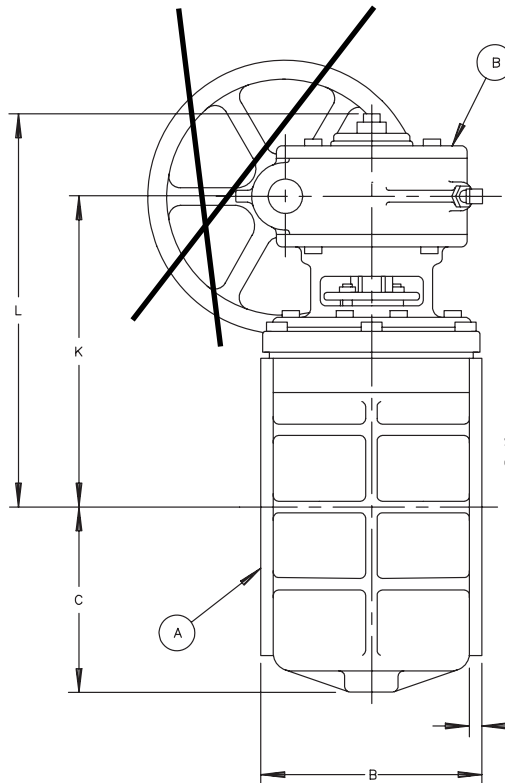
NOTE:

- FLANGES ARE FLAT FACED WITH DIAMETER AND DRILLING TO CLASS 125 ANSI STANDARD B16.1, EXCEPT FOR TAPPED HOLES AS INDICATED. SEE A-16368 FOR NON-ANSI FLANGE DATA.
- 13 TURNS OF HANDWHEEL ARE REQUIRED TO OPEN VALVE.
- INSTALLATION NOTE:
 - FOR LIQUIDS & GASES: INSTALL VALVE WITH HIGHER PRESSURE AGAINST END OPPOSITE SEAT.
 - FOR SUSPENDED SOLIDS, SLURRIES, ETC: INSTALL VALVE WITH HIGHER PRESSURE AGAINST SEAT END. IN HORIZONTAL PIPELINES, VALVE SHOULD BE INSTALLED ON IT'S SIDE SO PLUG ROTATES TO THE TOP OF THE PIPELINE WHEN OPEN. (SEE DIAGRAM BELOW).

VALVE SIZE	ACTUATOR NUMBER	DIMENSIONS	
		R	IN
4	GS-6-HD8	8.00 203	6.88 175
5 & 6	GS-6-HD8	8.00 203	8.75 222
5 & 6	GS-6-HD12	12.00 305	8.75 222
8	GS-6-HD8	8.00 203	8.75 222
8	GS-6-HD12	12.00 305	9.38 238
10	GS-6-HD8	8.00 203	11.12 282
10	GS-6-HD12	12.00 305	11.62 295
12	GS-6-HD8	8.00 203	11.88 302
12	GS-6-HD12	12.00 305	12.88 327

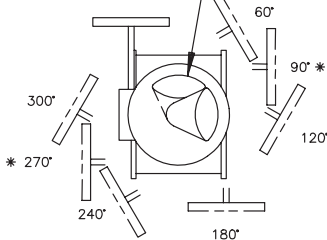


NOTICE
THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES. IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.



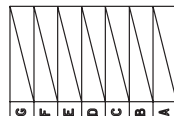
PLUG IN OPEN POSITION. SEE INSTALLATION NOTE.

STANDARD POSITION SHOWN ON THIS DRAWING



ACTUATOR MOUNTING POSITIONS AS VIEWED FROM TOP OF VALVE. DOTTED LINES SHOW OPTIONAL MOUNTING POSITIONS.

* THE 90° AND 270° POSITIONS REQUIRE DIFFERENT INTERNAL GEARING. THESE POSITIONS MUST BE NOTED ON THE PURCHASE ORDER.

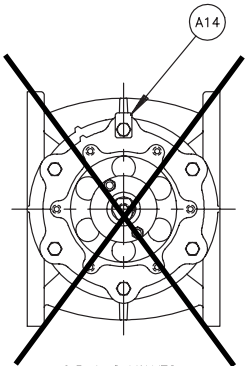


DeZURIK
Sartell, MN USA 56377
www.dezurik.com

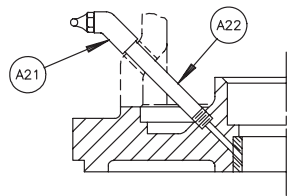
PEC ECCENTRIC VALVES SIZE 4-12 FLANGED MATERIAL GROUP 1
~~GS-6-HD-12-HANDWHEEL-ACTD~~

DOCT. CODE	DRAWN	BMP	APPROVED	TPK
C1	CHECKED	TPK	DATE	02/08/99

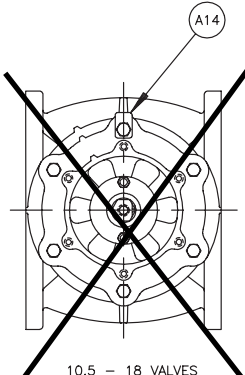
A46423



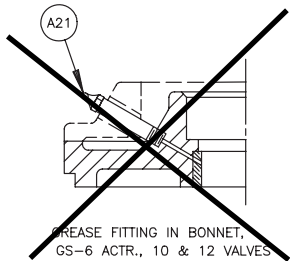
6.5 & 8 VALVES



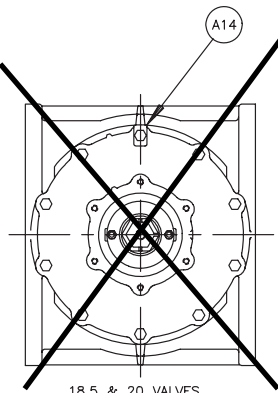
GREASE FITTING IN BONNET, ALL ACTUATORS EXCEPT GS-6, 10 & 12 VALVES



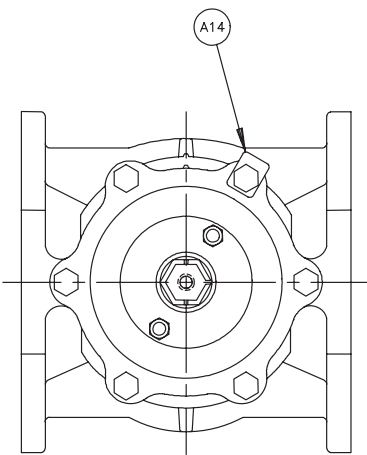
10.5 - 18 VALVES



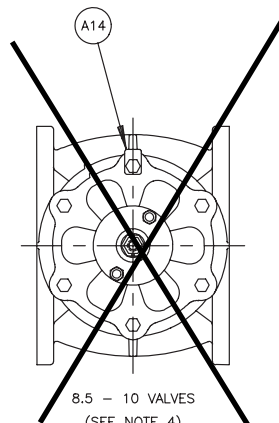
GREASE FITTING IN BONNET, GS-6 ACTR., 10 & 12 VALVES



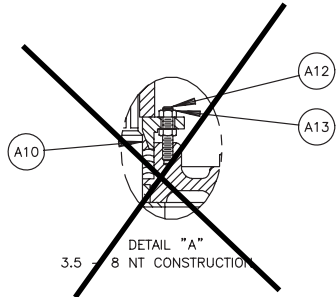
18.5 & 20 VALVES



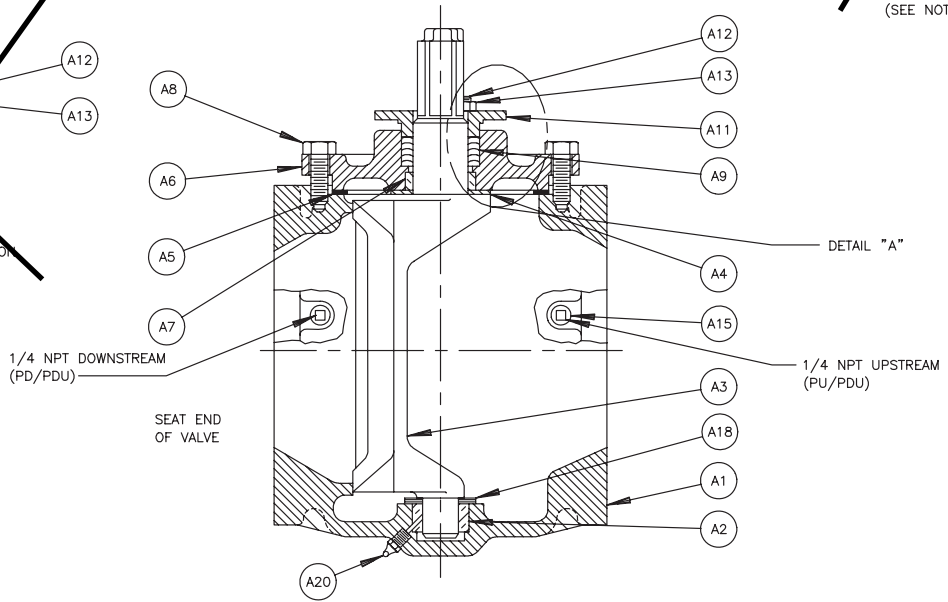
3.5 - 6 VALVES (SEE NOTE 4)



8.5 - 10 VALVES (SEE NOTE 4)



DETAIL "A" 3.5 - 8 NT CONSTRUCTION



1/4 NPT DOWNSTREAM (PD/PDU)

SEAT END OF VALVE

DETAIL "A"

1/4 NPT UPSTREAM (PU/PDU)

NOTE:

1. RECOMMENDED SPARE PARTS ARE ITEMS NUMBER A3, PLUG(IF RUBBER FACED), A4, A5 AND A9.
2. WHEN ORDERING PARTS, INCLUDE VALVE SIZE AND PART NUMBER FROM DATA PLATE. ALSO INCLUDE THIS DRAWING NUMBER WITH PART NAME, NUMBER AND QUANTITY.
3. CLOCKWISE ROTATION OF PLUG STEM CLOSSES VALVE.
4. ON THE SIZE 3.5, 4, 4.5, 5, 6, 8.5, & 10 VALVES BONNET SCREWS ARE USED FOR MOUNTING ACTUATOR.
5. VALVE MAY BE FURNISHED WITH EITHER THE UPPER JOURNAL GREASE FITTING, THE LOWER JOURNAL GREASE FITTING OR BOTH.

NO	PART NAME	QTY
A1	BODY	1
A2	BEARING (3.5 - 8 VALVES)	1
A2	BEARING (8.5 - 18 VALVES)	2
A2	BEARING (18.5 & 20 VALVES)	1
A3	PLUG	1
A4	THRUST WASHER (GRIT EXCLUDER WITH GE OPTION)	1
A5	GASKET (BODY)	1
A6	BONNET	1
A7	BEARING	1
A8	SCREW (3.5 - 18 VALVES)	6
A8	SCREW (18.5 & 20 VALVES)	10
A9	PACKING	-
A10	CONE, 3.5 - 8 NT (EXCEPT LOW FRICTION CAT. CHAR. NBRL & SQ. PACKING)	1
A11	GLAND	1
A12	STUD (3.5 - 20 GS--HD_ & GS--CW_)	2
A12	STUD (3.5 - 20 GS--C_)	2
A12	STUD (8.5 - 12 MNA)	NOT REQ'D
A12	STUD (8.5 - 12 LV)	NOT REQ'D
A12	STUD (3.5 - 20 GS--ML_)	2
A12	STUD (3.5 - 8 NT)	2
A12		
A12		
A13	NUT (3.5 - 20 GS--HD_ & GS--CW_)	2
A13	NUT (3.5 - 20 GS--C_)	2
A13	NUT (8.5 - 12 MNA)	NOT REQ'D
A13	NUT (8.5 - 12 LV)	NOT REQ'D
A13	NUT (3.5 - 12 GS--ML_)	2
A13	NUT (3.5 - 8 NT)	4
A13		
A13		
A14	CAUTION TAG	1
A15	PIPE PLUG (PU, PD OR PDU)	-
A18	GRIT EXCLUDER (OPTION GE ONLY)	-
A20	GREASE FITTING (OPTION GR ONLY)	1
A21	GREASE FITTING (OPTION GR ONLY)	1
A22	NIPPLE (EXCEPT LV & NT) (OPTION GR ONLY)	1

Q	80047	07/06/11
P	81945	11/16/09
N	81612	06/10/08
M	81602	04/02/08
L	81371	11/22/05
K	80285	10/19/00
J	84653	03/20/99
H	84620	02/11/99
G	83766	09/03/96
F	80312	03/22/93
E	80312	03/03/93
D	81172	03/05/91
C	88317	6/21/85
B	19276	11/22/82
A	14670	08/28/81

DeZURIK
Sartell, MN USA 56377
www.dezurik.com

PEC ECCENTRIC VALVE ASSEMBLY
3.5 - 20, FLANGED, EXCEPT BODY MATERIAL CIS, DIS & CIH

DOCT. CODE	DRAWN	APPROVED
C1	BENNY	RJP
CHECKED	DATE	
TNB	10-13-83	

A20730

MATERIAL OF CONSTRUCTION
Parts List Per Drawing A-20730
4-16" Eccentric Valve Assembly, Flanged

Part Description	Line No	Material
Body	A01	Cast Iron ASTM A126 Class B
Bearing	A02	Sintered Stainless Steel Type 316L
Plug	A03	Cast Iron ASTM A126 Class B
Facing		CR Chloroprene
Washer	A04	Virgin Teflon
Gasket (Body)	A05	Non-Asbestos Compressed
Bonnet	A06	Cast Iron ASTM A126 Class B
Bearing	A07	Sintered Stainless Steel Type 316L
Screw	A08	Stainless Steel Type 18-8
Packing	A09	NBR
Cone	A10	Ryton
Gland	A11	Cast Iron ASTM A126 Class B
Stud	A12	Stainless Steel Type 18-8
Nut	A13	Stainless Steel Type 18-8
Caution Tag	A14	Stainless Steel Type 302
Washer	A18	Teflon



EPOXOLINE SERIES 141

PRODUCT PROFILE

- GENERIC DESCRIPTION** Modified Polyamine Epoxy
- COMMON USAGE** High solids coating which offers high-build edge protection and excellent corrosion resistance. For use on the interior and exterior of steel or concrete tanks, reservoirs, pipes, valves, pumps and equipment in potable water service as well as other steel and concrete substrates.
- COLORS** **ANSI/NSF Std. 61 colors:** 1211 Red, 1255 Beige, 33GR Gray, 35GR Black and WH03 Off-White. **Note:** Other colors may be available for non-potable water applications. Contact your Tnemec representative. Minimum order requirements may apply. **Note:** Epoxies chalk with extended exposure to sunlight. Lack of ventilation, incomplete mixing, miscatalyzation or the use of heaters that emit carbon dioxide and carbon monoxide during application and initial stages of curing may cause yellowing to occur.
- SPECIAL QUALIFICATIONS** Certified by **NSF International** in accordance with **NSF/ANSI Std. 61**. Ambient air cured Series 141 is qualified for use on tanks and reservoirs of 1,000 gallons (3,785L) capacity or greater, pipes ten (10) inches (25 cm) in diameter or greater and valves two (2) inches (5 cm) in diameter or greater. A one coat application is to be used with pipes 10" and greater and for valves 2" and greater. A two to three coat application is to be used with pipes 4" and greater and for valves 2" and greater. Conforms to **AWWA D 102 Inside Systems No. 1 and No. 2**. Conforms to **AWWA C 210**. Contact your Tnemec representative for systems and additional information. Reference the "Search Listings" section of the NSF website at www.nsf.org for details on the maximum allowable DFT.
- PERFORMANCE CRITERIA** Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

- PRIMERS** **Steel:** Self-priming, 1, 20, FC20, 27, 37H, L69, L69F, N69, N69F, V69, V69F, 90-E92, 90-97, 91-H₂O, 94-H₂O, 135, L140, L140F, N140, N140F, V140, V140F, 394, 530
Concrete: Self-priming, 20, FC20, 27, L69, L69F, N69, N69F, V69, V69F, L140, L140F, N140, N140F, V140, V140F, 215, 218
CMU: Self-priming or Series 130, 215, 218, 1254
- TOPCOATS** **Exterior:** Series 73, 180, 740, 750, 1074, 1074U, 1075, 1075U, 1080, 1081. Refer to COLORS on applicable topcoat data sheets for additional information. **Note:** The following maximum recoat time applies when using Series 73, 180, 740, 750, 1074, 1074U, 1075, 1075U, 1080 or 1081: thirty (30) days. If this time limit is exceeded, Series 141 must be uniformly scarified prior to topcoating.

SURFACE PREPARATION

- PRIMED STEEL** **Immersion Service:** Scarify the Series 20, FC20, L69, L69F, N69, N69F, V69, V69F, L140, L140F, N140, N140F, V140 or V140F prime coat surface by brush-blasting with fine abrasive before topcoating if it has been exterior exposed for 30 days or longer and 141 is the specified topcoat.
- STEEL** **Immersion Service:** SSPC-SP10/NACE 2 Near-White Blast Cleaning with a minimum angular anchor profile of 2.0 mils
Non-Immersion Service: SSPC-SP6/NACE 3 Commercial Blast Cleaning with a minimum angular anchor profile of 2.0 mils
- CONCRETE** Allow to cure for 28 days. Abrasive blast referencing SSPC-SP13/NACE 6, ICRI CSP 3-5 Surface Preparation of Concrete and Tnemec's Surface Preparation and Application Guide.
- ALL SURFACES** Must be clean, dry and free of oil, grease, chalk and other contaminants.

TECHNICAL DATA

- VOLUME SOLIDS** 82% ± 2.0% (mixed) †
- RECOMMENDED DFT** 4.0 to 18.0 mils (100 to 455 microns) in one coat. **Note:** Thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative. Maximum dry film thickness for NSF exposure is 18.0 mils.

CURING TIME AT 5 MILS DFT

Temperature	To Handle	To Recoat	Immersion
90°F (32°C)	3 hours	4 hours	7 days
75°F (24°C)	4 hours	5 hours	7 days
65°F (18°C)	7 hours	9 hours	8 days
55°F (11°C)	13 hours	18 hours	9 days
45°F (7°C)	20 hours	30 hours	13 days
40°F (4°C)	22 hours	42 hours	18 days

Curing time varies with surface temperature, air movement, humidity and film thickness.
Note: For one-coat pipe and valve applications, allow 30 days cure at 75°F (24°C) prior to immersion.

VOLITILE ORGANIC COMPOUNDS

EPA Method 24
Unthinned: 0.52 lbs/gallon (63 grams/litre)
Thinned 4%: 0.75 lbs/gallon (90 grams/litre)
Thinned 10%: 1.27 lbs/gallon (153 grams/litre) †

HAPS

Unthinned: 1.3 lbs/gal solids
Thinned 5%: 1.6 lbs/gal solids
Thinned 10%: 1.9 lbs/gal solids

THEORETICAL COVERAGE

1,315 mil sq ft/gal (32.2 m²/L at 25 microns). See APPLICATION for coverage rates. †

NUMBER OF COMPONENTS

Two: Part A (amine) and Part B (epoxy)

MIXING RATIO

By volume: Two (Part A) to one (Part B)

EPOXOLINE | SERIES 141

PACKAGING

	PART A (Partially Filled)	PART B (Partially Filled)	When Mixed
Large Kit	1-6 gallon pail	1-3 gallon pail	5 gallons
Small Kit	1-1 gallon can	1-1 gallon can	1 gallon

NET WEIGHT PER GALLON

13.33 ± 0.25 lbs (6.05 ± .11 kg) †

STORAGE TEMPERATURE

Minimum 20°F (-7°C) Maximum 110°F (43°C)

Prior to application, the material temperature should be above 60°F (16°C). It is suggested the material be stored at this temperature at least 48 hours prior to use.

TEMPERATURE RESISTANCE

(Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)

SHELF LIFE

12 months at recommended storage temperature.

FLASH POINT - SETA

Part A: 91°F (33°C) Part B: 111°F (44°C)

HEALTH & SAFETY

This product contains chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

APPLICATION

COVERAGE RATES

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m ² /Gal)
Minimum	4.0 (100)	5.0 (125)	329 (30.5)
Maximum	18.0 (455)	22.0 (560)	73 (6.8)

Note: Maximum of 18.0 mils DFT in one coat. **Maximum total dry film thickness for NSF exposure is 18.0 mils.** Allow for overspray and surface irregularities. Wet film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. Reference the "Search Listings" section of the NSF website at www.nsf.org for details on the maximum allowable DFT. †

MIXING

Mix the entire contents of Part A and Part B separately. Scrape all of the Part B into the Part A pail by using a flexible spatula. Use a variable speed drill with a PS Jiffy blade and mix the blended components for a minimum of two minutes. Apply the mixed material within pot life limits after agitation. Both components must be above 50°F (10°C) prior to mixing. For optimum application properties, the material temperature should be above 60°F (16°C). For applications to surfaces between 40°F to 50°F (4°C to 10°C) allow mixed material to stand 30 minutes and restir before use. **Note:** A large volume of material will set up quickly if not applied or lessened in mass. **Caution: Do not reseal mixed material. An explosion hazard may be created.**

THINNING

Caution: Do not add thinner to Part A prior to mixing with Part B. Use No. 4 Thinner. For airless spray, roller or brush, thin up to 4% per gallon. For air spray, thin up to 10% per gallon. To comply with SCAQMD VOC regulations, maximum thinning is 4%. **Caution: Series 141 NSF certification is based on thinning with No. 4 Thinner. Use of any other thinner voids ANSI/NSF Std. 61 certification.**

POT LIFE

2 hours at 77°F (21°C) 1 hour at 90°F (32°C)

SPRAY LIFE

1 hour at 77°F (21°C) 30 minutes at 90°F (32°C)

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	75-100 psi (5.2-6.9 bar)	10-20 psi (0.7-1.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.017"-0.021" (430-535 microns)	3000-3800 psi (207-262 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

Roller: Roller application optional when environmental restrictions do not allow spraying. Use 3/8" or 1/2" (9.5 mm to 12.7 mm) synthetic woven nap covers.

Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes.

SURFACE TEMPERATURE

Minimum 40°F (4°C) Maximum 135°F (57°C)

The surface should be dry and at least 5°F (3°C) above the dew point. Coating will not cure below minimum surface temperature.

CLEANUP

Flush and clean all equipment immediately after use with the recommended thinner or MEK.

† Values may vary with color.

WARRANTY & LIMITATION OF SELLER'S LIABILITY: Tnemec Company, Inc. warrants only that its coatings represented herein meet the formulation standards of Tnemec Company, Inc. THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPH SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The buyer's sole and exclusive remedy against Tnemec Company, Inc. shall be for replacement of the product in the event a defective condition of the product should be found to exist and the exclusive remedy shall not have failed its essential purpose as long as Tnemec is willing to provide comparable replacement product to the buyer. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, ENVIRONMENTAL INJURIES OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. Technical and application information herein is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and Tnemec Company makes no claim that these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.



STANDARD PAINT SPECIFICATION

Name: 4D566 Blue Semi-Gloss Water Reducible Enamel
Material: Modified Alkyd
Viscosity: 44" - 50" seconds #3 Zahn @ 77° F (25° C).
Reduction: None
Application: Spray as is
% Solids by Weight: 47.5 ± 2% min.
% Solids by Volume: 32% min.
Gloss: 40 - 50
Theoretical coverages: 400/425 @ 1.5 to 2.0 mils
Air Drying Time @ 77°F (25° C):
 Set to Touch: 20 - 30 min.
 Dry to Handle: 1 hour
 Dry to Hard: 4 hours
VOC: 2.98 lbs/gal.
Mandrel Flexibility: Good
Knife Flexibility: Good
Impact Flexibility: Good
Salt Spray: 5% salt spray @ 95% humidity for 400 hrs (no rust)
Recoatibility: Accepts all types of top coats, e.g. epoxy, coal tar epoxy, vinyl, phenolic, asphaltic, urethane, rubber base and zinc chromate (no zinc filler).
DeZURIK Standard Thickness: 1.5 - 2 mils
12 oz. Aerosol Spray Can PN 1206694 (touch-up)

Electric Motor Actuator Data Sheet

Date:	7/11/2012
Contract Eng.:	MJM
Project:	Harold D Thompson WWTP
Consultant:	
MOV Tag No.'s:	
Shop Drawing:	

Line:	1
-------	---

CUSTOMER DATA

Name:	MTE
P.O. No.:	
P.O. Item:	1

VALVE DATA

Make:	Dezurik
Size:	4"
Type:	Plug Valve
Class:	150B

ACTUATOR DATA

Model No.:	IQTM250FA10
Base:	FA10
Actuator/Gear Weight:	51 lbs.
Enclosure:	NEMA 4/6
Rated Torque:	1476 ft-lbs.
Wiring Diagram:	7000-000-1
Operating Time:	30 SEC

Handwheel Type:	Yes
Paint Spec.:	Polyester Powder Coating
Conduit 1 & 3:	ASA 0.75"
Conduit 2:	ASA 0.75"
Conduit 4:	None
Lubrication:	STD
Operating Temp.:	(-30C TO +70C)

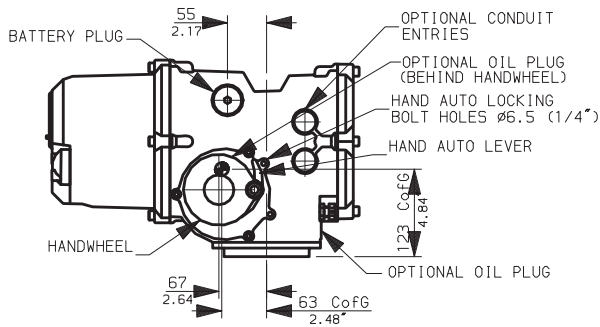
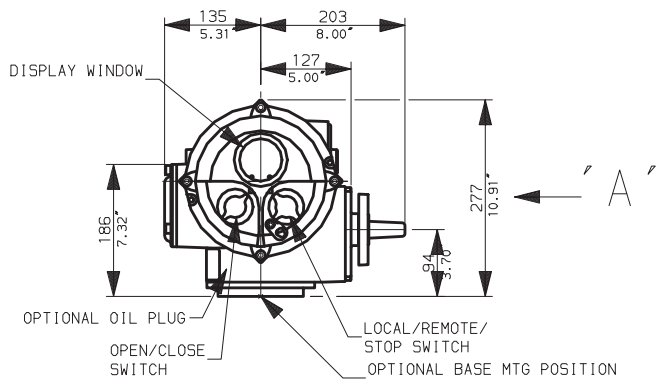
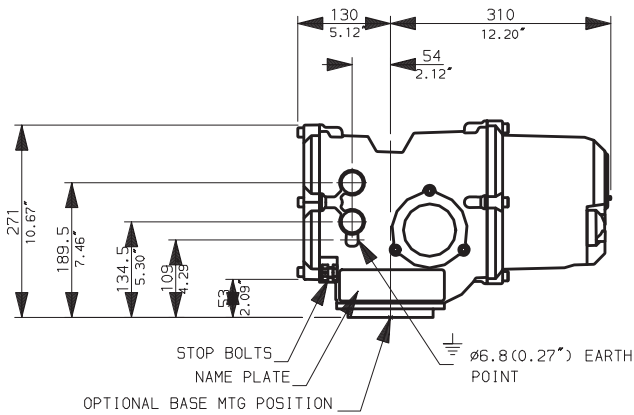
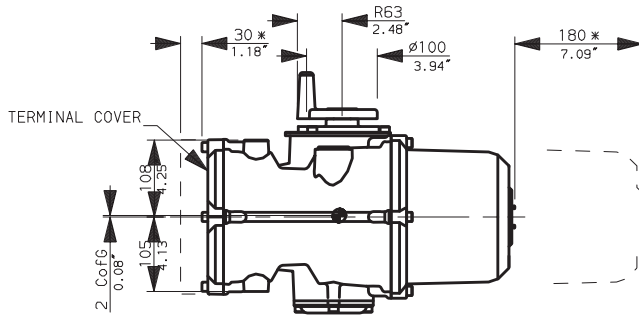
MOTOR DATA

Locked Rotor Amps:	
Rated Load Amps:	1.2 A
*Nominal Load Amps:	1.2 A
*Norm. Motor HP:	0.58

Supply V/Ph/Hz:	460/3/60
Insulation Class/duty:	F
Service Factor:	1
Type:	Totally Enclosed Non-Ventilated

*

IQT125, 250 & 500 ACTUATORS

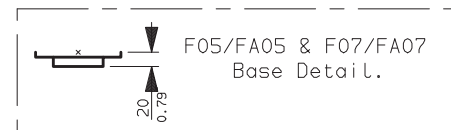


VIEW ON ARROW 'A'

NOTES:

:REGISTERED DESIGN 000034863

:F10/FA10 BASE OPTION IS DETAILED TO SUIT THE RELEVANT COUPLING ARRANGEMENTS. FOR OPTIONAL F05/FA05, F07/FA07 LOAD SYMBOL TO THE POSITIONS INDICATED.



CONDUIT ENTRIES



TAPPED 2xM25x1.5p
(OPTIONAL ADAPTORS FOR
M20, 1/2", 3/4", 1" NPT, 1 1/4", 1 1/2",
PG16 & PG21).

rotork

IQT125, 250, 500 DATA

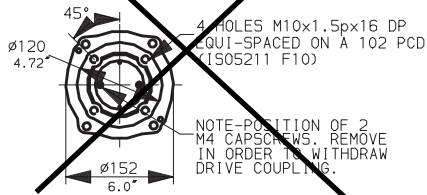
Date 090804

Scale 1:10

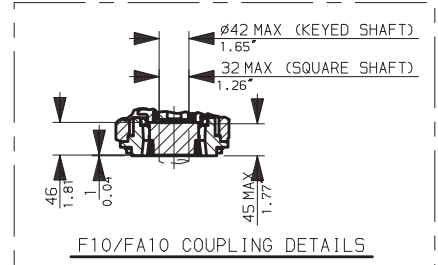
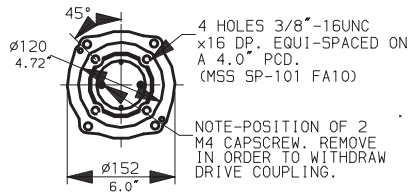
IQT125, 250 & 500 BASES

~~F10 / FA10 BASES~~

~~F10 BASE DETAILS~~



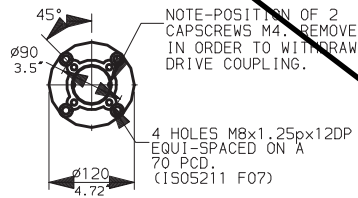
FA10 BASE DETAILS



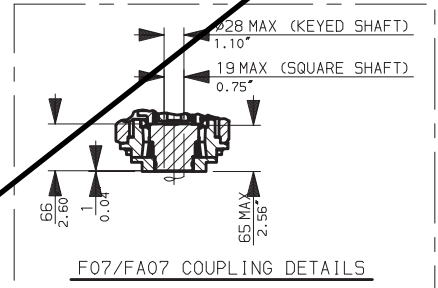
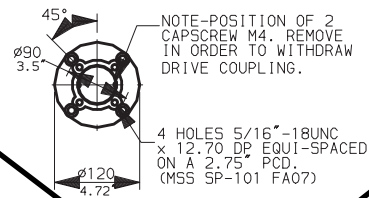
F10/FA10 COUPLING DETAILS

~~F07 / FA07 BASES~~

~~F07 BASE DETAILS~~



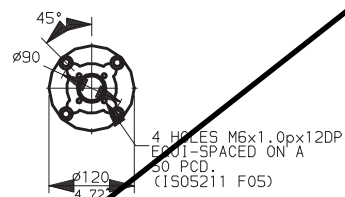
FA07 BASE DETAILS



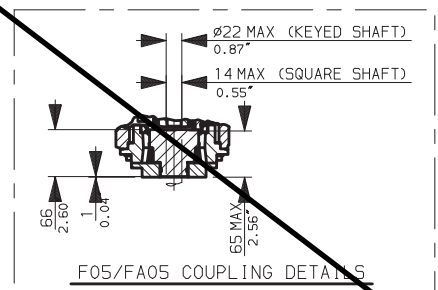
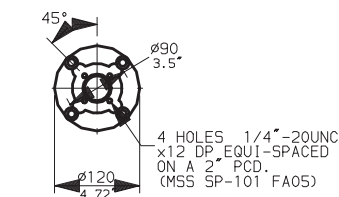
F07/FA07 COUPLING DETAILS

~~F05 / FA05 BASES~~

~~F05 BASE DETAILS~~



FA05 BASE DETAILS



F05/FA05 COUPLING DETAILS

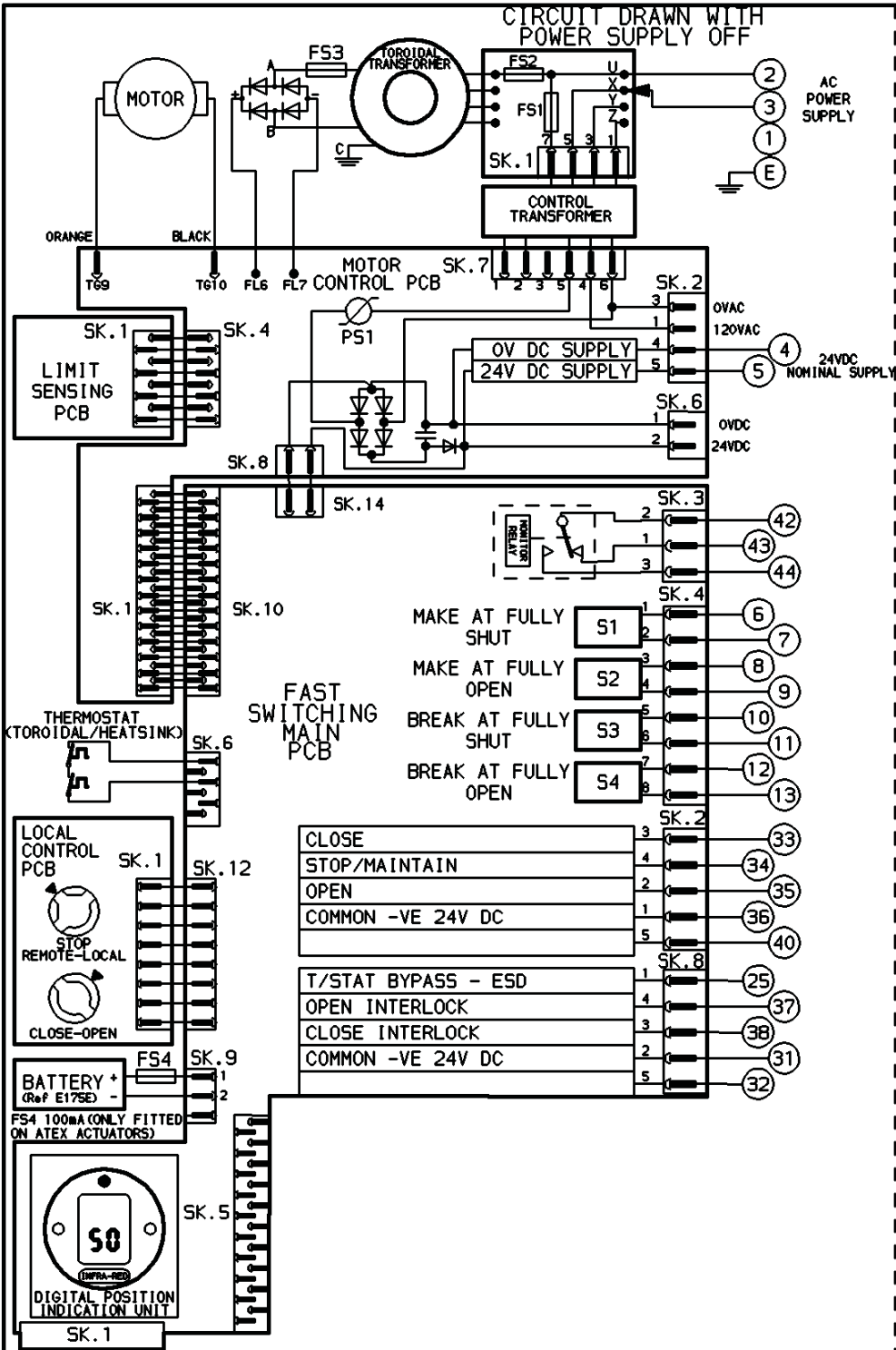
rotork

IQT125, 250, 500 BASES

Date 200803

Scale 1:10

CIRCUIT DRAWN WITH
POWER SUPPLY OFF



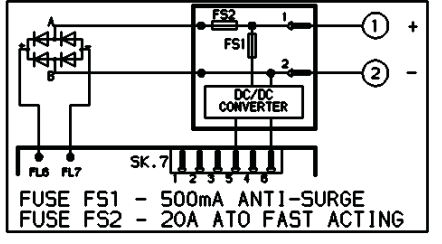
FOR TYPICAL REMOTE CONTROL
DETAILS SEE DOCUMENT
RWS700

TRANSFORMER TAPPING OPTIONS

TYPE 1			TYPE 2		
TAP	NOM	RANGE	TAP	NOM	RANGE
X	100	80-120	X	200	160-240
Y	110	88-132	Y	230	184-276
Z	120	96-144	Z	270	216-324
F51-250mA A/S F52-5A A/S			F51-150mA A/S F52-2.5A A/S		

TYPE 3			TYPE 4		
TAP	NOM	RANGE	TAP	NOM	RANGE
X	380	304-456	X	480	384-576
Y	400	320-480	Y	575	460-690
Z	415	332-498	Z	690	552-828
F51-100mA A/S F52-1.5A A/S			F51-50mA A/S F52-1.6A F/A		

TRANSFORMER TYPES 1, 2, 3 & 4 -
FUSE F53 - 20A ATO FAST ACTING
TYPE 5 24VDC



ALL TRANSFORMER TYPES -
PS1 SELF RESETTING FUSE

NOTE
REFER TO PUBLICATION E175E FOR
APPROVED FUSES F51, F52 AND F53.

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

CONTROL SIGNAL THRESHOLD VOLTAGES
TO BE MINIMUM 'ON' 20V DC
MAXIMUM 'OFF' = 3V
MINIMUM CONTROL SIGNAL DURATION
TO BE 100ms.

CURRENT DRAWN FROM EACH REMOTE
CONTROL SIGNAL IS 5mA ON 24V DC

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 E175E

No.	DATE	REVISION DETAILS
01	-	FIRST PRODUCTION ISSUE

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 PJW
DATE 040803
CHECKED TH
BASE WD 7000-000
JOB No -
M. I. No -

IQTM BASIC

CIRCUIT DIAGRAM No -REV
7000-000-01

B1 C1 B2 C2

Document Title: **STANDARD IQT REMOTE CONTROL CIRCUITRY - MODULATING (24VDC)**

THE INFRA RED SETTING TOOL ENABLES ALL CONFIGURABLE ACTUATOR SETTINGS TO BE MADE.

BEFORE PUTTING THE ACTUATOR INTO SERVICE, IT MUST BE INSTALLED AND COMMISSIONED IN ACCORDANCE WITH PUBLICATION E175E :IQT INSTALLATION AND MAINTENANCE INSTRUCTIONS.
UNLESS SPECIFIED WITH ORDER, THE ACTUATOR IS DESPATCHED WITH DEFAULT SETTINGS AS LISTED IN PUBLICATION E175E.

FOR IQT CONTROL AND MONITORING FACILITIES, REFER TO PUBLICATION E120E.

NOTE:
ACTUATOR REMOTE CONTROL SIGNALS MAY BE INTERNALLY OR EXTERNALLY SUPPLIED.

INTERNALLY SUPPLIED:
FIT LINK '#' AS SHOWN AND CONNECT REMOTE CONTROL CONTACTS TO INTERNAL SUPPLY ON TERMINAL 5.

EXTERNALLY SUPPLIED:
CONNECT CONTROL CONTACTS TO EXTERNAL SUPPLY +VE.
CONNECT SUPPLY -VE AS FOLLOWS:-
TO TERMINAL 36 & 31 FOR A 24VDC SUPPLY.

CUSTOMER CONNECTIONS FOR REMOTE CONTROL

INTERNAL SUPPLY
-VE (ZERO)

COMMON FOR REMOTE
CONTROLS ON 24VDC

CLOSE

MAINTAIN

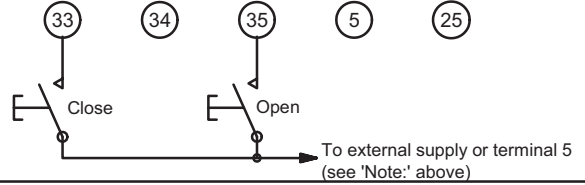
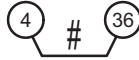
OPEN

INTERNAL SUPPLY
24V DC +VE

EMERGENCY SHUTDOWN

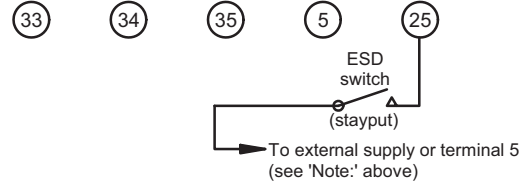
FORM A

OPEN/CLOSE PUSH TO RUN CONTROL
(LOCAL CONTROL REMAINS SELF MAINTAINED)



FORM F

EMERGENCY SHUT-DOWN CIRCUIT.
THE ESD CIRCUIT CAN BE ADDED TO ANY OF THE CONTROL CIRCUITS SHOWN ABOVE.
AN ESD SIGNAL APPLIED TO THE ACTUATOR WILL OVERRIDE ANY EXISTING OPEN OR CLOSE CONTROL SIGNAL.
THE DEFAULT ESD CONFIGURATION IS "STAY PUT", DERIVED FROM A N/O CONTACT (SIGNAL APPLIED).
FOR OTHER CONFIGURABLE ESD SETTING OPTIONS, REFER TO PUBLICATION E175E:IQT INSTALLATION AND MAINTENANCE INSTRUCTIONS.



Introduction

This guide provides IQT range motor data for class F, 15 minute rated actuators at the following supply voltages:

Voltages at 50Hz & 60Hz –

100, 110, 120, 200, 208, 220, 230, 240, 270, 380, 400, 415, 440, 460, 480, 500, 550, 575, 660 and 690
Voltage tolerance +10/-15%, frequency +/-5%

24VDC

(tolerance 17 – 36 V DC)

For AC supplies the IQT range utilises 2 phases only (phase - neutral / phase – phase) which are internally transformed and rectified to supply the control package and DC motor.

In order to achieve supply load diversity on 3 phase supplies, multiple actuators should be connected equally across all three phases. Three terminals are provided for cable connection. Refer to wiring diagram.

Design criteria

Motors designed for operation of valve actuators require special consideration. As continuous running is not a requirement with isolating and “inching” or regulating duty valves, motors need only be short duty time rated. Valve load can vary dramatically across stroke and from stroke to stroke as process and valve conditions vary. These conditions can vary from light running to rated torque with a facility to exceed rated in unseating “sticky” valves, actual motor loading has no constant. To apply traditional motor protection to actuator motors is therefore flawed, leading to spurious tripping or no protection at all.

Rotork recognise the special nature of actuator motors and have therefore designed the IQT range motor and its control package with this unique duty at the forefront.

IQT Motor Design

IQT motors are of a low inertia, 24VDC permanent magnet DC motors and are class F insulated, S2 – 20% duty cycle at 70% of rated torque.

IQT motor control protection

The primary protection for the motor is torque switch protection. By measuring the actuator output torque and comparing to the open and close torque switch setting, effective motor and more importantly, valve protection is achieved.

Thermostats providing over temperature protection, if the duty cycle exceeds actuator rating, also protect IQT units. IQT control protection will prevent motor stall in the event of valve jamming. Phase rotation protection and lost phase protection are also incorporated as standard. Using torque as the primary means of motor protection, along with thermostat and IQT control protection, the requirement for traditional protection methods and their inherent weakness when applied to short time duty, variable load motors is eliminated.

Power supply cable sizing

As a minimum requirement, cables must be sized to ensure volt drop does not exceed 10% of nominal supply voltage at rated torque.

Fuse selection

Due to the unique nature of the motor duty and taking in to account the comprehensive control protection of the IQT, sizing of fuses or trip devices should be based on protecting the power cable connected to the actuator.

Frequency converters and UPS

Where UPS systems are required, the power supply should have negligible harmonic distortion. In general terms actuators are designed to operate on power supplies conforming to recognised power supply standards such as EN 50160 - Voltage Characteristics of Electricity Supplied by Public Distribution systems.

IQT, IQTM and IQTF Electrical Performance Data

Publication E135E Issue 4 10/03/06

Data is at actuator rated torque. Data is valid for both 50Hz and 60Hz supplies. All data is approximate.

Supply Voltage	IQT125			IQT250			IQT500			IQT1000			IQT2000		
	Current Amps	Power Factor	Power KW	Current Amps	Power Factor	Power KW	Current Amps	Power Factor	Power KW	Current Amps	Power Factor	Power KW	Current Amps	Power Factor	Power KW
24VDC	10.0		0.24	12.0		0.29	13.0		0.32	13.0		0.32	15.0		0.36
100	3.5	0.95	0.33	4.5	0.95	0.43	4.5	0.95	0.43	4.7	0.95	0.45	5.3	0.95	0.50
110	3.2	0.95	0.33	4.1	0.95	0.43	4.1	0.95	0.43	4.3	0.95	0.45	4.8	0.95	0.50
120	2.9	0.95	0.33	3.7	0.95	0.43	3.7	0.95	0.43	3.9	0.95	0.45	4.4	0.95	0.50
200	1.7	0.95	0.33	2.2	0.95	0.43	2.2	0.95	0.43	2.4	0.95	0.45	2.6	0.95	0.50
208	1.7	0.95	0.33	2.2	0.95	0.43	2.2	0.95	0.43	2.4	0.95	0.45	2.6	0.95	0.50
220	1.7	0.95	0.33	2.2	0.95	0.43	2.2	0.95	0.43	2.4	0.95	0.45	2.6	0.95	0.50
230	1.5	0.95	0.33	1.9	0.95	0.43	1.9	0.95	0.43	2.1	0.95	0.45	2.3	0.95	0.50
240	1.5	0.95	0.33	1.9	0.95	0.43	1.9	0.95	0.43	2.1	0.95	0.45	2.3	0.95	0.50
270	1.5	0.95	0.33	1.9	0.95	0.43	1.9	0.95	0.43	2.1	0.95	0.45	2.3	0.95	0.50
380	0.9	0.95	0.33	1.2	0.95	0.43	1.2	0.95	0.43	1.2	0.95	0.45	1.4	0.95	0.50
400	0.9	0.95	0.33	1.2	0.95	0.43	1.2	0.95	0.43	1.2	0.95	0.45	1.4	0.95	0.50
415	0.9	0.95	0.33	1.2	0.95	0.43	1.2	0.95	0.43	1.2	0.95	0.45	1.4	0.95	0.50
440	0.9	0.95	0.33	1.2	0.95	0.43	1.2	0.95	0.43	1.2	0.95	0.45	1.4	0.95	0.50
460	0.9	0.95	0.33	1.2	0.95	0.43	1.2	0.95	0.43	1.2	0.95	0.45	1.4	0.95	0.50
480	0.7	0.95	0.33	0.9	0.95	0.43	0.9	0.95	0.43	1.0	0.95	0.45	1.1	0.95	0.50
500	0.7	0.95	0.33	0.9	0.95	0.43	0.9	0.95	0.43	1.0	0.95	0.45	1.1	0.95	0.50
550	0.7	0.95	0.33	0.9	0.95	0.43	0.9	0.95	0.43	1.0	0.95	0.45	1.1	0.95	0.50
575	0.7	0.95	0.33	0.9	0.95	0.43	0.9	0.95	0.43	1.0	0.95	0.45	1.1	0.95	0.50
660	0.7	0.95	0.33	0.9	0.95	0.43	0.9	0.95	0.43	1.0	0.95	0.45	1.1	0.95	0.50
690	0.7	0.95	0.33	0.9	0.95	0.43	0.9	0.95	0.43	1.0	0.95	0.45	1.1	0.95	0.50

