

Product data sheet

Sheet No.: 1.601.00 - Rev: A

Date: October, 2006

FieldQ

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Product data sheet

Sheet No.: 1.601.01 - Rev: B, page 1 of 2

Date: May, 2006

FieldQ

FieldQ Valve Actuator

General Overview

Description

The FieldQ valve actuator consists of three modules, which form an integrated concept for "On/Off" valve automation. These three modules are:

1 Basic actuator

The basic actuator supplies the torque, required to open and close valves and is available in various sizes (rated 47 to 1676Nm at 5.5barg or 413 to 14874 In.lb. at 80psig). Double acting and spring return executions are available. The spring return execution can be equipped with multiple spring sets to cover a pressure range from 2 to 8 barg (30 to 120 psig).

2 Pneumatic Module

The Pneumatic Module is the pneumatic interface between the basic actuator and the Control Module. It contains a booster block which is controlled by a pilot valve in the Control Module. Optionally, the Pneumatic Module can be equipped with integrated Speed Control throttles.

3 Control Module

The Control Modules contain the terminal connections for control and feedback signals, the pilot valve for controlling directly the Pneumatic Module and indirectly the basic actuator.

"Smart" Control Modules have additional electronics and a button board. This button board enables to start the auto-initialization procedure, which automatically sets the feedback switch points.

General specifications:

Construction

Ingress protection rated IP65 / NEMA4X and suitable for indoor and outdoor installation.

Finish

- Housing : Anodized with a polyester non-TGIC based powder coating
- Pistons: Chromitized
- Pinion: Hard anodized

Lubrication

Factory lubricated for the normal life of the actuator.

Temperature

Depends on the utilized Control Module. See applicable data sheets 1.604.xxx.

European Directives:

The basic actuator complies to PED 97/23/EC and to ATEX 94/9/EC and is marked:

II 2 GD c T120°C

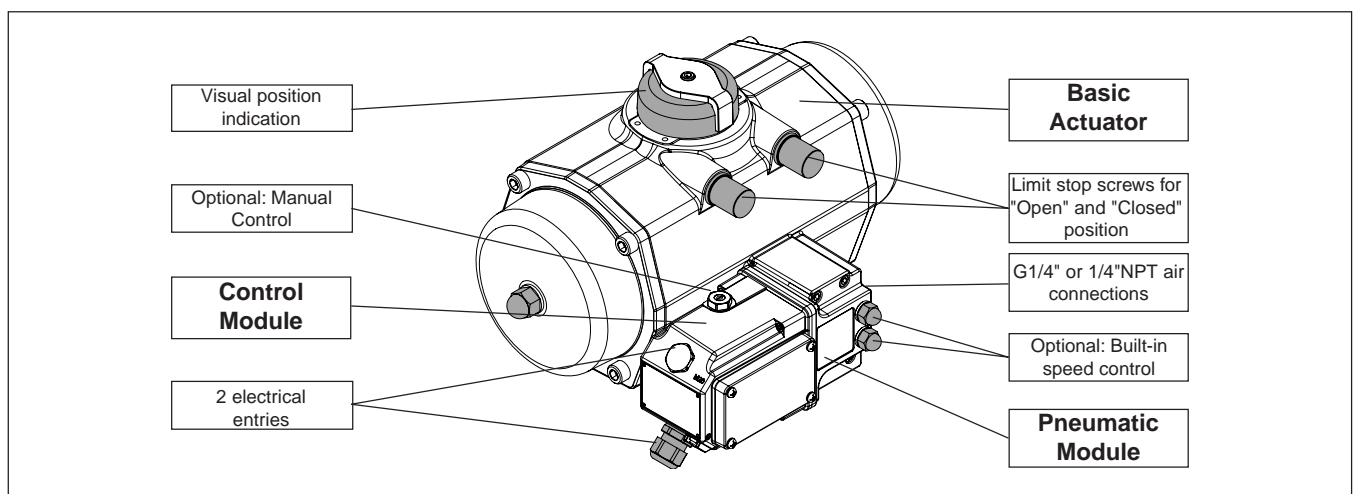
Actuator specifications

Pressure:

- Double acting
 - 2 to 8 barg / 30 to 120 psig
- Spring return
 - with maximum spring set:
 - 6 to 8 barg / 87 to 120psig
 - with reduced spring set:
 - 3 to 8 barg / 43 to 120 psig

Operating media

- Air or inert gasses, filtered at 50 micron. The following Control Modules require air filtered at 5 micron: QC03, QC04 and QC34 (see applicable data sheets 1.604.xx).
- Dew point 10K below operating temperature. For subzero applications take appropriate measures.



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Product data sheet

Sheet No.: 1.601.01 - Rev: B, page 2 of 2

Date: May, 2006

FieldQ

FieldQ Valve Actuator

General Overview

Torque

- 40 to 1600 Nm. (300 to 11000 In.lb.)
- See sheets 1.602.01, 1.602.02 or 1.602.03.

Rotation

- Factory set at $90^{\circ} \pm 0.5$
- Adjustable range: -3° to $+15^{\circ}$ and $+75^{\circ}$ to 93°
- Clockwise fail action, see sheet 1.606.04 for optional fail actions (assembly codes).
- See 1.606.03 for other double acting assembly codes.
- For more info on failure modes see 1.606.02

Cycle life

- 500.000 cycles minimum

Control Modules

Smart modules

- QC01 24VDC,
- QC02 85-254VAC
- QC03 Intrinsically safe
- QC04 Intrinsically safe with NAMUR feedback

Bus communication modules

- QC30 AS-Interface
- QC34 Foundation™ Fieldbus

Options

Manual Control, ATEX, FM or CSA approvals, glands ,plugs and connector plugs

Technical specifications

See sheets 1.604.xx

Pneumatic Modules

Functions :

Double or Single Acting (spring return)

Actuator range :

Suitable for Q40 to Q1600

Enclosure :

IP65 / NEMA4X

Pneumatic connections:

G1/4" or 1/4"NPT

"Breather" function:

Standard for single acting actuators

Options :

Speed control, IP65 / NEMA4X rated exhaust port filters or silencers.

Technical specifications

See sheets 1.605.xx

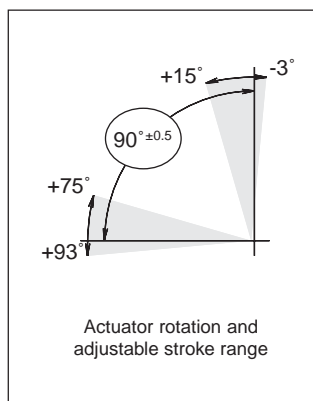
NAMUR plate

The top flange of the FieldQ actuator is standard equipped with a NAMUR (VDE/VDI 3845) drilling pattern.

The addition of a NAMUR plate makes the FieldQ actuator suitable for mounting all kinds of NAMUR compatible control and feedback accessories like solenoids, switch boxes or positioners.

Technical specifications

See sheets 1.605.03



Actuator data		Q40	Q65	Q100	Q150	Q200	Q350	Q600	Q950	Q1600	
Bore	mm.	70	80	91	103	110	145	175	200	230	
	inch	2.76	3.15	3.58	4.06	4.33	5.71	6.89	7.87	9.06	
Stroke	mm.	18.8	22.0	25.1	31.4	37.7	37.7	44.0	50.3	62.8	
	inch	0.74	0.87	0.99	1.24	1.48	1.48	1.73	1.98	2.47	
Weight:	Double acting	kg.	1.8	2.4	3.1	4.5	5.8	10.4	19	26	43
		lb.	4.0	5.3	6.8	9.8	13	23	43	58	94
	Spring return	kg.	2.4	3.6	4.6	6.9	9.1	17	28	39	66
		lb.	5.3	7.9	10	15.1	20	37	61	85	145
Operating time		sec.	0.7	1.1	1.2	1.8	2.3	3.6	4.5	6.9	
Air consumption per stroke											
at 1 atm (litres)	Central air chamber	0.16	0.33	0.35	0.84	0.8	1.8	2.9	4.7	7.3	
	Endcap air chambers	0.22	0.36	0.49	0.78	1	1.9	3.1	4.9	8.0	
at 1 atm (cu. in.)	Central air chamber	10	20	21	51	49	110	177	287	445	
	Endcap air chambers	13	22	30	48	61	116	189	299	488	



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Sheet No.: 1.602.01 - Rev: A
Date: April 2006

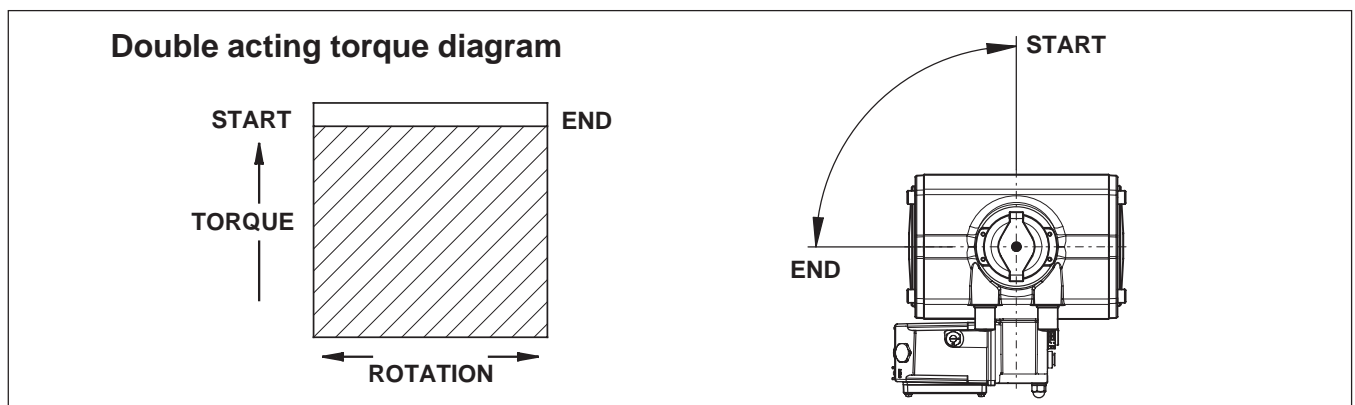
FieldQ

FieldQ Actuator Torque

Double Acting Actuators - Nm & in.lb.

Actuator type	Torque (Nm)										
	Supply Pressure (bar g)										
	2	3	3.5	4	4.5	5	5.5	6	6.5	7	8
QD 40	17	25	29	34	38	42	47	51	55	59	68
QD 65	25	38	45	51	58	64	71	77	84	90	104
QD 100	38	57	66	76	86	95	105	115	124	134	153
QD 150	60	91	106	122	137	153	168	183	199	214	245
QD 200	82	124	146	167	188	209	230	251	272	293	335
QD 350	143	216	253	290	326	363	400	436	473	510	583
QD 600	243	368	430	492	554	617	679	741	804	866	991
QD 950	363	549	642	735	828	921	1014	1107	1200	1293	1479
QD 1600	600	907	1061	1214	1368	1522	1676	1829	1983	2137	2444

Actuator type	Torque (in.lb.)										
	Supply pressure (psig)										
	30	45	50	60	65	70	75	80	90	100	120
QD 40	153	231	257	309	335	361	387	413	465	518	622
QD 65	233	352	391	471	511	550	590	630	709	789	948
QD 100	344	520	579	696	755	814	873	931	1049	1166	1401
QD 150	551	833	927	1115	1209	1303	1397	1491	1680	1868	2244
QD 200	754	1140	1269	1526	1655	1784	1913	2041	2299	2556	3071
QD 350	1310	1981	2205	2652	2876	3100	3323	3547	3994	4442	5337
QD 600	2226	3366	3747	4507	4887	5267	5647	6028	6788	7548	9069
QD 950	3323	5025	5593	6727	7295	7862	8430	8997	10132	11267	13537
QD 1600	5493	8307	9245	11121	12059	12998	13936	14874	16750	18626	22379



Note:

1. Actuator torques are guaranteed minimum torque values. Emerson Process Management recommends that the valve manufacturer supply the maximum required torque values (Including any adjustments or suggested safety factors for valve service conditions or application). Additionally, the valve manufacturer must identify at which position(s) and direction(s) of rotation (Counter Clock Wise or Clock Wise) these maximum requirements occur.
2. If in doubt, or you require any assistance with sizing actuators, do not hesitate to contact your nearest Emerson's Valve Automation Division representative.



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Sheet No.: 1.602.02 - Rev: A

Date: April 2006

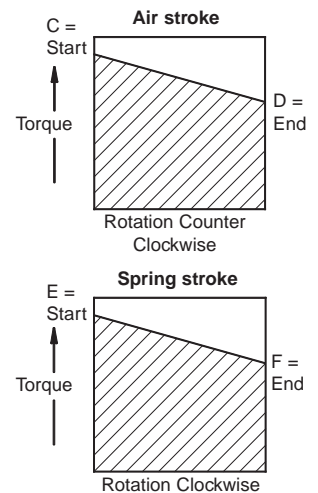
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FieldQ Actuator Torque

Spring Return Actuators - Nm

Spring set nr.	Actuator Size	Air Torque (Nm)																Spring Torque (Nm)	
		Supply pressure (bar g)																	
		3		3.5		4		4.5		5		5.5		6		7		E	F
QS 40	2	17	11	22	16	26	21	31	25	35	30	40	34	44	39	53	48	13	8
	3	12	4	17	8	21	13	26	17	31	22	35	27	40	31	49	40	20	12
	4	-	-	12	1	17	5	21	10	26	14	30	19	35	23	44	32	26	17
	5	-	-	-	-	-	-	17	2	21	7	26	11	30	16	39	25	33	21
QS65	2	26	17	32	23	39	30	46	37	53	44	60	51	67	58	81	72	21	13
	3	18	4	25	11	32	18	39	25	45	32	52	39	59	46	73	60	32	20
	4	-	-	-	-	24	6	31	13	38	20	45	27	52	34	65	48	42	26
	5	-	-	-	-	-	-	23	1	30	8	37	15	44	22	58	35	53	33
QS 100	2	39	27	49	37	60	47	70	57	80	67	90	78	100	88	121	108	29	18
	3	29	10	39	20	49	30	59	40	70	51	80	61	90	71	110	91	44	27
	4	-	-	28	3	39	13	49	24	59	34	69	44	79	54	100	75	58	36
	5	-	-	-	-	-	-	38	7	49	17	59	27	69	38	89	58	73	46
QS 150	2	62	39	78	56	94	72	111	88	127	105	143	121	159	137	192	170	50	30
	3	44	11	60	27	77	44	93	60	109	76	126	93	142	109	175	141	74	45
	4	-	-	-	-	59	15	76	31	92	48	108	64	125	80	157	113	99	61
	5	-	-	-	-	-	-	58	3	75	19	91	35	107	52	140	84	124	76
QS 200	2	85	57	107	79	130	101	152	124	174	146	197	168	219	191	264	236	65	41
	3	61	19	84	41	106	64	129	86	151	109	173	131	196	153	240	198	98	61
	4	-	-	60	4	83	26	105	49	127	71	150	93	172	116	217	160	131	82
	5	-	-	-	-	-	-	82	11	104	33	126	56	149	78	193	123	163	102
QS 350	2	144	96	183	135	221	174	260	213	299	251	338	290	377	329	454	407	116	74
	3	101	30	140	68	179	107	217	146	256	185	295	224	334	263	412	340	174	112
	4	-	-	97	2	136	41	175	80	214	118	252	157	291	196	369	274	232	149
	5	-	-	-	-	-	-	132	13	171	52	210	91	248	130	326	207	289	186
QS 600	2	249	166	315	232	381	298	447	364	513	430	579	496	645	562	777	694	195	122
	3	179	54	245	120	311	186	377	252	443	318	509	384	575	450	707	582	292	183
	4	-	-	174	8	240	74	306	140	372	206	438	272	504	338	636	470	389	245
	5	-	-	-	-	-	-	236	28	302	94	368	160	434	226	566	358	487	306
QS 950	2	375	248	474	347	572	446	671	544	769	643	868	741	966	840	1163	1037	290	179
	3	272	82	371	181	469	279	568	378	666	476	765	575	863	673	1060	870	434	269
	4	-	-	268	14	366	113	465	211	563	310	662	408	760	507	957	704	579	359
	5	-	-	-	-	-	-	362	45	460	143	559	242	657	340	854	537	724	448
QS 1600	2	617	416	780	579	943	742	1106	905	1269	1068	1432	1231	1594	1394	1920	1719	474	299
	3	445	144	608	307	771	470	934	633	1097	796	1260	959	1423	1121	1748	1447	711	449
	4	-	-	436	35	599	198	762	361	925	523	1088	686	1251	849	1576	1175	947	598
	5	-	-	-	-	-	-	590	88	753	251	916	414	1079	577	1405	903	1184	748
6	-	-	-	-	-	-	-	-	-	-	744	142	907	305	1233	630	1421	897	

Spring return torque diagrams



Note:

1. Actuator torques are guaranteed minimum torque values. Emerson Process Management recommends that the valve manufacturer supply the maximum required torque values (Including any adjustments or suggested safety factors for valve service conditions or application).
Additionally, the valve manufacturer must identify at which position(s) and direction(s) of rotation (Counter Clock Wise or Clock Wise) these maximum requirements occur.
2. If in doubt, or you require any assistance with sizing actuators, do not hesitate to contact your nearest Emerson's Valve Automation Division representative.



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Sheet No.: 1.602.03 - Rev: A
Date: April 2006

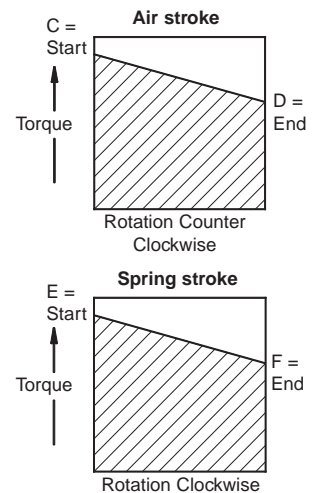
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FieldQ Actuator Torque

Spring Return Actuators - In.lb.

Actuator Size	Spring set nr.	Air Torque (in.lb.) Supply pressure (psig)												Spring Torque (in.lb.)	
		40		60		80		90		100		120			
		C	D	C	D	C	D	C	D	C	D	C	D	E	F
QS 40	2	133	82	243	193	354	303	409	358	464	414	575	524	117	73
	3	91	15	201	125	312	236	367	291	422	346	533	457	176	110
	4	-	-	159	58	270	169	325	224	380	279	491	390	234	146
	5	-	-	-	-	227	101	283	156	338	212	448	322	293	183
	6	-	-	-	-	185	34	241	89	296	144	406	255	351	220
QS 65	2	196	117	364	285	533	454	617	538	701	622	870	790	186	117
	3	129	10	297	178	466	347	550	431	634	515	802	683	279	176
	4	-	-	230	71	398	240	482	324	567	408	735	576	372	234
	5	-	-	-	-	331	133	415	217	499	301	668	470	465	292
	6	-	-	-	-	264	26	348	110	432	194	601	363	558	351
QS 100	2	303	192	552	441	801	690	926	814	1050	939	1299	1188	258	161
	3	211	44	460	293	709	541	833	666	957	790	1206	1039	387	242
	4	-	-	367	144	616	393	740	518	865	642	1114	891	516	323
	5	-	-	-	-	523	245	648	369	772	494	1021	743	646	403
	6	-	-	-	-	430	96	555	221	679	345	928	594	775	484
QS 150	2	474	278	873	677	1272	1076	1471	1275	1670	1474	2069	1873	439	268
	3	320	26	719	425	1118	823	1317	1023	1516	1222	1915	1621	659	403
	4	-	-	565	172	963	571	1163	770	1362	970	1761	1368	878	537
	5	-	-	-	-	809	319	1008	518	1208	717	1606	1116	1097	671
	6	-	-	-	-	655	66	854	266	1054	465	1452	864	1317	805
QS 200	2	656	406	1201	952	1747	1497	2020	1770	2293	2043	2838	2589	579	362
	3	448	74	994	619	1539	1165	1812	1438	2085	1710	2631	2256	868	542
	4	-	-	786	287	1332	832	1604	1105	1877	1378	2423	1923	1158	723
	5	-	-	-	-	1124	500	1396	772	1669	1045	2215	1591	1447	904
	6	-	-	-	-	916	167	1189	440	1462	713	2007	1258	1736	1085
QS 350	2	1105	684	2053	1632	3001	2580	3475	3054	3949	3528	4897	4476	1025	658
	3	727	95	1675	1043	2623	1991	3097	2465	3571	2939	4519	3887	1537	987
	4	-	-	1297	454	2245	1402	2719	1877	3193	2351	4141	3299	2049	1317
	5	-	-	-	-	1866	814	2340	1288	2814	1762	3762	2710	2561	1646
	6	-	-	-	-	1488	225	1962	699	2436	1173	3384	2121	3074	1975
QS 600	2	1920	1183	3531	2794	5142	4405	5947	5211	6753	6016	8364	7628	1723	1082
	3	1298	193	2909	1804	4520	3415	5325	4221	6131	5026	7742	6637	2585	1624
	4	-	-	2287	814	3898	2425	4703	3230	5509	4036	7120	5647	3446	2165
	5	-	-	-	-	3276	1434	4081	2240	4887	3046	6498	4657	4308	2706
	6	-	-	-	-	2654	444	3459	1250	4265	2055	5876	3666	5169	3247
QS 950	2	2898	1777	5303	4182	7708	6587	8910	7789	10113	8992	12518	11396	2563	1587
	3	1986	304	4391	2709	6796	5114	7998	6316	9201	7519	11606	9924	3844	2381
	4	-	-	3479	1236	5883	3641	7086	4844	8288	6046	10693	8451	5125	3175
	5	-	-	-	-	4971	2168	6174	3371	7376	4573	9781	6978	6407	3968
	6	-	-	-	-	4059	695	5262	1898	6464	3100	8869	5505	7688	4762
QS 1600	2	4765	2988	8741	6964	12716	10939	14704	12927	16692	14915	20668	18890	4193	2646
	3	3244	578	7220	4554	11195	8530	13183	10517	15171	12505	19147	16481	6289	3970
	4	-	-	5699	2144	9675	6120	11662	8108	13650	10096	17626	14071	8385	5293
	5	-	-	-	-	8154	3711	10141	5698	12129	7686	16105	11662	10481	6616
	6	-	-	-	-	6633	1301	8621	3289	10608	5277	14584	9252	12578	7939

Spring return torque diagrams



Note:

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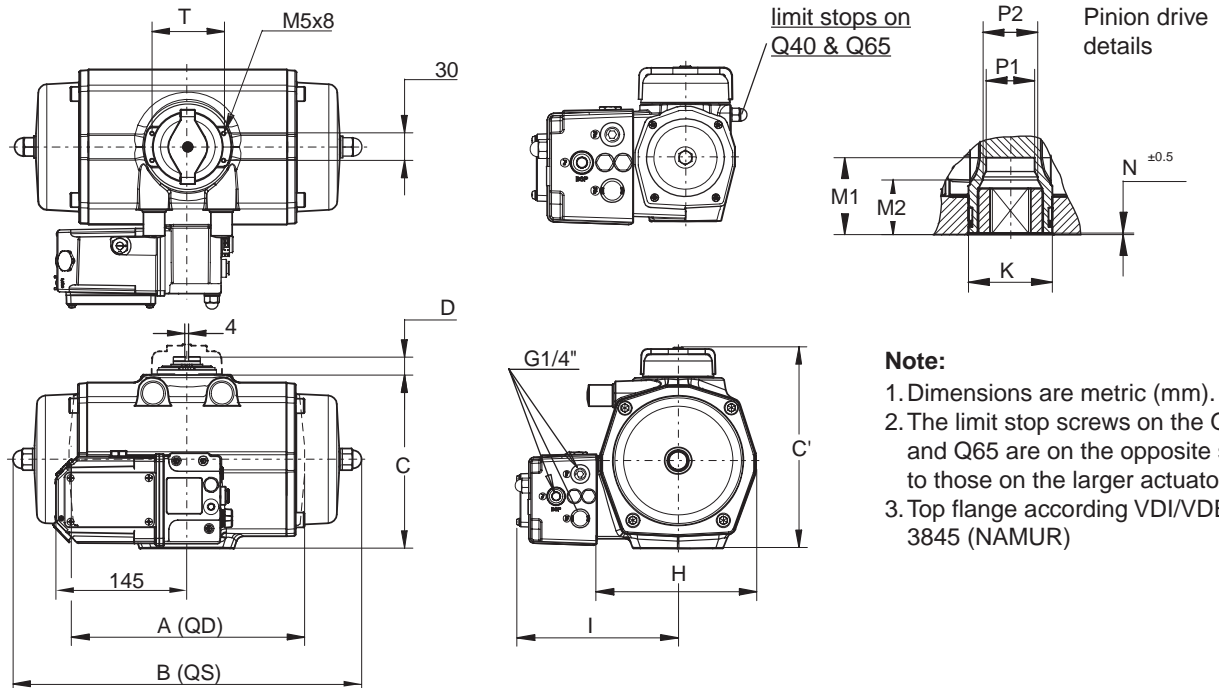
Product data sheet

Sheet No.: 1.603.01 - Rev: A
Date: September, 2006

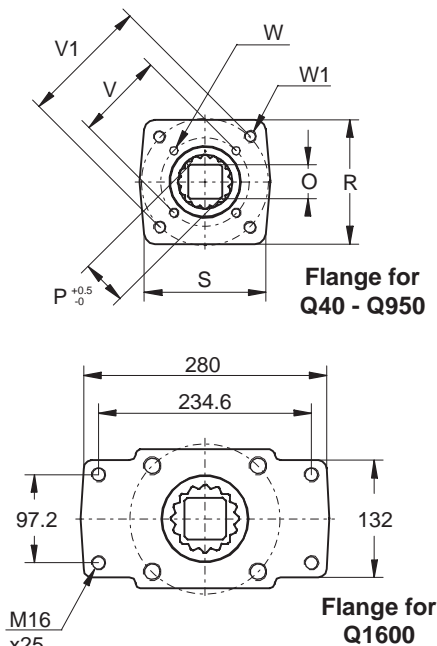
FieldQ

FieldQ Valve Actuator Dimensions

Metric Actuators - ISO5211



- Note:**
1. Dimensions are metric (mm).
 2. The limit stop screws on the Q40 and Q65 are on the opposite side to those on the larger actuators.
 3. Top flange according VDI/VDE 3845 (NAMUR)



*) Four holes of the F25 ISO Drilling pattern

Dim. in mm.	FieldQ™ actuator models								
	Q40	Q65	Q100	Q150	Q200	Q 350	Q600	Q950	Q1600
A QD	180	199	221	310	283	305	387	424	516
B QS	202	249	254	211	358	390	419	460	568
C	104	117	141	150	160	191	245	276	337
C'	137	150	175	184	194	225	289	319	380
D	20	20	20	20	20	20	30	30	30
H	90	102	115	129	135	177	209	234	268
I	128	142	141	158	149	171	187	200	217
K	33	33	38	55	55	55	68	75	95
M1	34.5	34.5	34.5	50	50	50	50	65	81
M2	-	-	27	-	37	37	-	-	-
N	1	1	1.5	1	1.5	1.5	1.5	1.5	1.5
O max.	14.11	14.11	19.13	19.13	22.13	27.13	27.13	36.16	46.16
O min.	14.00	14.00	19.00	19.00	22.00	27.00	27.00	36.00	46.00
P	18.1	18.1	25.2	25.2	28.2	36.2	36.2	48.2	60.2
P1	18.1	21.2	23.5	28.5	32.2	32.2	36.8	48.3	60.5
P2	-	-	25.2	-	36.2	36.2	-	-	-
R	65	70	70	90	90	114	124	130	154
S	65	70	70	90	90	114	124	142	280
T	80	80	80	80	80	80	130	130	130
PCD	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F14	F16/F25*
V	50	50	50	70	70	70	102	102	165
V1	70	70	70	102	102	102	125	140	-
W	M6x 10	M6x 10	M6x 10	M8x 13	M8x 13	M8x 13	M10x 16	M10x 16	M20x 30
W1	M8x 13	M8x 13	M8x 13	M10x 16	M10x 16	M10x 16	M12x 20	M16x 25	-



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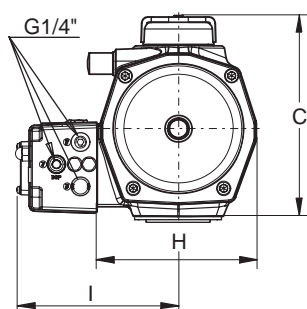
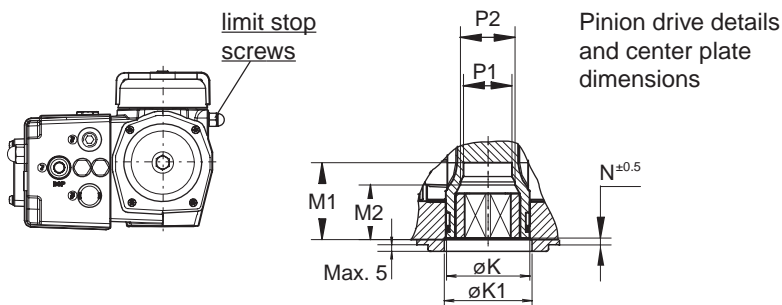
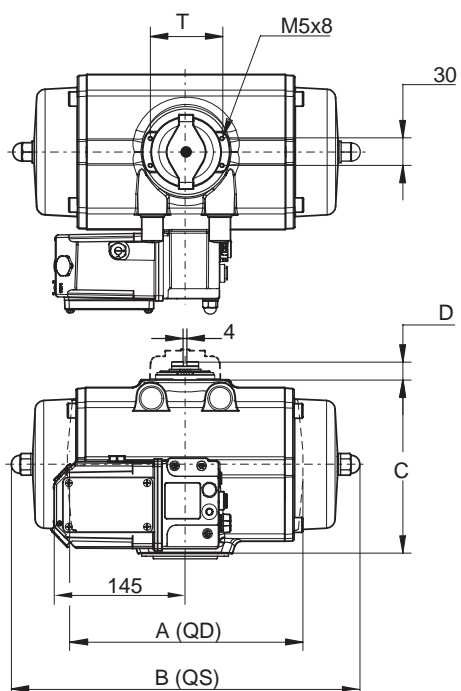
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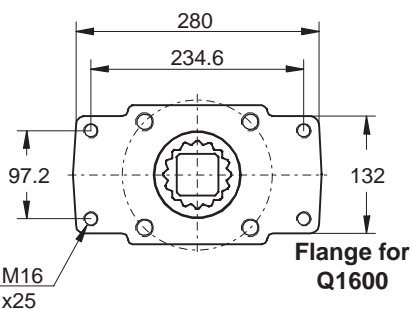
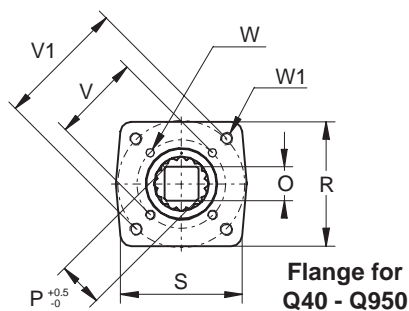
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FieldQ Valve Actuator Dimensions

Metric Actuators - DIN3337



- Note:**
1. Dimensions are metric (mm).
 2. The limit stop screws on the Q40 and Q65 are on the opposite side to those on the larger actuators.
 3. Top flange according VDI/VE 3845 (NAMUR)



*) Four holes of the F25 Drilling pattern

Dim.	FieldQ™ actuator models									
in mm.	Q40	Q65	Q100	Q150	Q200	Q 350	Q600	Q950	Q1600	
A QD	180	199	221	310	283	305	387	424	516	
B QS	202	249	254	211	358	390	419	460	568	
C	104	117	141	150	160	191	245	276	337	
C'	137	150	175	184	194	225	289	319	380	
D	20	20	20	20	20	20	30	30	30	
H	90	102	115	129	135	177	209	234	268	
I	128	142	141	158	149	171	187	200	217	
K	33	33	38	55	55	55	68	75	95	
K1	32	32	40	50	54	54	68	75	95	
M1	34.5	34.5	34.5	50	50	50	50	65	81	
M2	-	-	27	-	37	37	-	-	-	
N	1	1	1.5	1	1.5	1.5	1.5	1.5	1.5	
O max.	14.11	14.11	17.13	17.13	22.13	27.13	27.13	36.16	46.16	
O min.	14.00	14.00	17.00	17.00	22.00	27.00	27.00	36.00	46.00	
P	18.1	18.1	22.2	22.2	28.2	36.2	36.2	48.2	60.2	
P1	18.1	21.2	23.1	28.5	32.2	36.5	36.8	48.3	60.5	
P2	-	-	25.2	-	36.2	-	-	-	-	
Q	35	70	55	55	70	70	85	100	130	
R	65	70	70	90	90	114	124	130	154	
S	65	70	70	90	90	114	124	142	280	
T	80	80	80	80	80	80	130	130	130	
PCD	F05	F05	F07	F07	F10	F10	F12	F14	F16	
V	50	50	70	70	102	102	125	140	165	
W	M6x	M6x	M8x	M8x	M10x	M10x	M12x	M16x	M20x	
	10	10	13	13	16	16	20	25	30	
Optional dimensions										
K1'	40	40	32	54	50	50	-	-	-	
Q'	55	35	35	70	55	55	-	-	-	
PCD	F07	F07	F05	F10	F07	F07	F10	F10	F25*	
V'	70	70	50	102	70	70	102	102	-	
W'	M8x	M8x	M8x	M10x	M10x	M10x	M12x	M16x	-	
	13	13	13	16	16	16	20	25	-	



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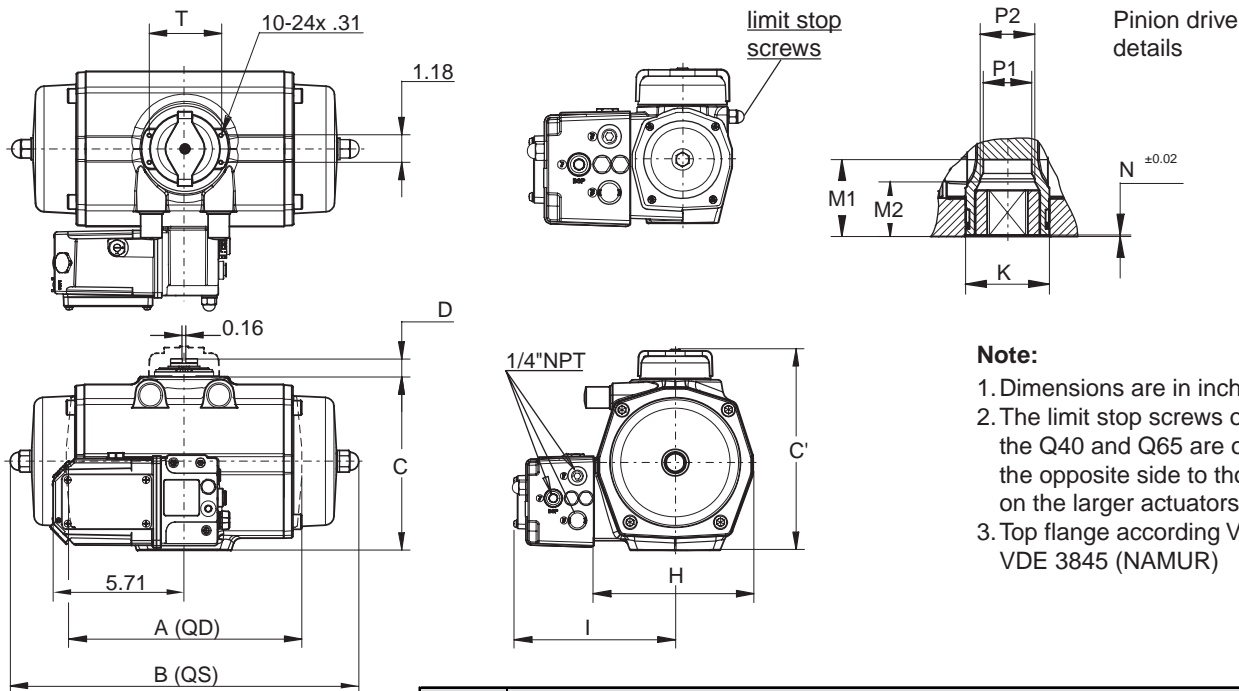
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Sheet No.: 1.603.04 - Rev: A
Date: September, 2006

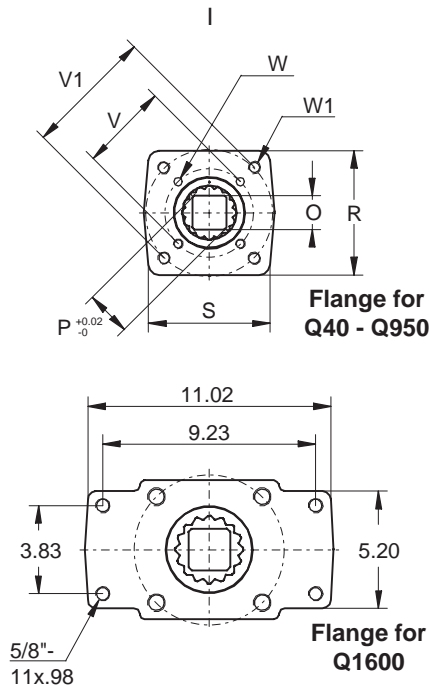
FieldQ

FieldQ Valve Actuator Dimensions

Imperial Actuators - ISO5211



- Note:**
1. Dimensions are in inches.
 2. The limit stop screws on the Q40 and Q65 are on the opposite side to those on the larger actuators.
 3. Top flange according VDI/VDE 3845 (NAMUR)



*) Four holes of the F25 ISO Drilling pattern

Dim. inches	FieldQ™ actuator models								
	Q40	Q65	Q100	Q150	Q200	Q 350	Q600	Q950	Q1600
A QD	7.09	7.83	8.70	12.20	11.14	12.01	15.24	16.69	20.31
B QS	7.95	9.80	10.00	8.31	14.09	15.35	16.50	18.09	22.34
C	4.09	4.59	5.55	5.91	6.30	7.52	9.65	10.87	13.27
C'	5.39	5.92	6.89	7.24	7.64	8.86	11.38	12.56	14.96
D	0.79	0.79	0.79	0.79	0.79	0.79	1.18	1.18	1.18
H	3.54	4.02	4.53	5.08	5.31	6.97	8.23	9.21	10.55
I	5.04	5.58	5.55	6.22	5.87	6.73	7.36	7.87	8.54
K	1.30	1.30	1.50	2.17	2.17	2.17	2.68	2.95	3.74
M1	1.36	1.36	1.36	1.97	1.97	1.97	1.97	2.56	3.19
M2	-	-	1.06	-	1.46	1.46	-	-	-
N	0.04	0.04	0.06	0.04	0.06	0.06	0.06	0.06	0.06
O max.	0.556	0.556	0.753	0.753	0.871	1.068	1.068	1.424	1.817
O min.	0.551	0.551	0.748	0.748	0.866	1.063	1.063	1.417	1.811
P	0.71	0.71	0.99	0.99	1.11	1.43	1.43	1.90	2.37
P1	0.71	0.83	0.93	1.12	1.27	1.27	1.45	1.90	2.38
P2	-	-	0.99	-	1.43	1.43	-	-	-
R	2.56	2.76	2.76	3.54	3.54	4.49	4.88	5.12	6.06
S	2.56	2.76	2.76	3.54	3.54	4.49	4.88	5.59	11.02
T	3.15	3.15	3.15	3.15	3.15	3.15	5.12	5.12	5.12
PCD	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F14	F16/F25*
V	1.969	1.969	1.969	2.756	2.756	2.756	4.016	4.016	6.496
V1	2.756	2.756	2.756	4.016	4.016	4.016	4.921	5.512	-
W	1/4"-20x.39	1/4"-20x.39	1/4"-20x.39	5/16"-18x.39	5/16"-18x.39	5/16"-18x.39	3/8"-16x.63	3/8"-16x.63	3/4"-10x1.14
W1	5/16"-18x.39	5/16"-18x.39	5/16"-18x.39	3/8"-16x.63	3/8"-16x.63	3/8"-16x.63	1/2"-13x.79	5/8"-11x.98	-



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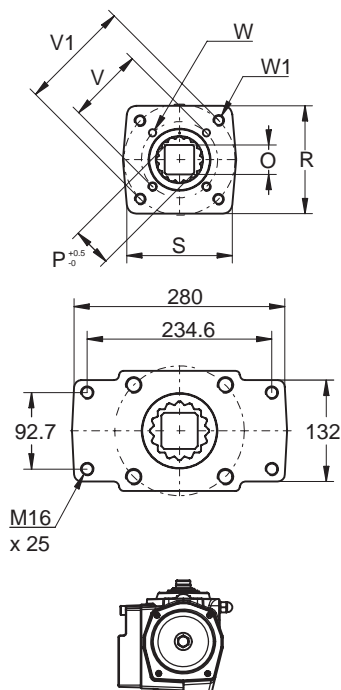
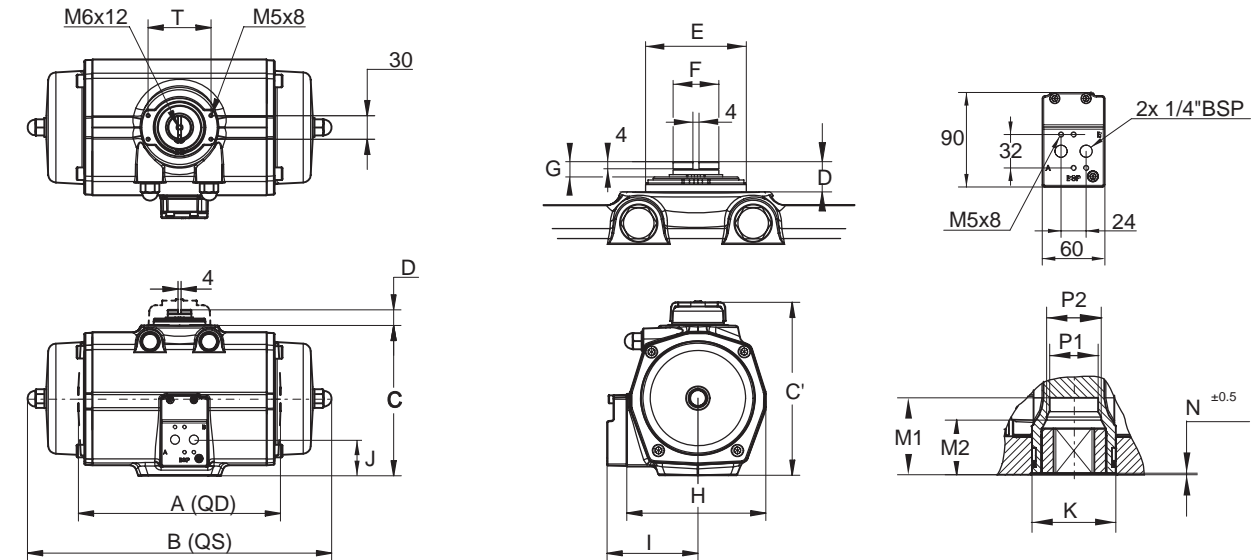
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Sheet No.: 1.603.05 - Rev: A
Date: September, 2006

FieldQ

FieldQ Valve Actuator Dimensions

Metric Actuators - ISO5211 / NAMUR plate



Note:

1. Dimensions are in mm.
2. The limit stop screws on the Q40 and Q65 are on the opposite side to those on the larger actuators.

Dim. in mm.	FieldQ™ actuator models								
	Q40	Q65	Q100	Q150	Q200	Q 350	Q600	Q950	Q1600
A QD	180	199	221	310	283	305	387	424	516
B QS	202	249	254	211	358	390	419	460	568
C	104	117	141	150	160	191	245	276	337
C'	137	150	175	184	194	225	289	319	380
D	20	20	20	20	20	20	30	30	30
E	56	56	56	65	66	66	87	96	95
F	16	18	20	22	30	30	35	35	45
G	9.5	9	11	10	9	10	19.5	19	28.5
H	90	102	115	129	135	177	209	234	268
I	75	81	88	97	99	119	134	147	164
J	40	40	50	46	45	46	53	56	70
K	33	33	38	55	55	55	68	75	95
M1	34.5	34.5	34.5	50	50	50	50	65	81
M2	-	-	27	-	37	37	-	-	-
N	1	1	1.5	1.0	1.5	1.5	1.5	1.5	1.5
O max.	14.11	14.11	19.13	19.13	22.13	27.13	27.13	36.16	46.16
O min.	14.00	14.00	19.00	19.00	22.00	27.00	27.00	36.00	46.00
P	18.1	18.1	25.2	25.2	28.2	36.2	36.2	48.2	60.2
P1	18.1	21.2	23.5	28.5	32.2	32.2	36.8	48.3	60.5
P2	-	-	25.2	-	36.2	36.2	-	-	-
R	65	70	70	90	90	114	124	130	154
S	65	70	70	90	90	114	124	142	280
T	80	80	80	80	80	80	130	130	130
PCD	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F14	F16/F25*
V	50	50	50	70	70	70	102	102	165
V1	70	70	70	102	102	102	125	140	-
W	M6x 10	M6x 10	M6x 10	M8x 13	M8x 13	M8x 13	M10x 16	M10x 16	M20x 30
W1	M8x 13	M8x 13	M8x 13	M10x 16	M10x 16	M10x 16	M12x 20	M16x 25	-



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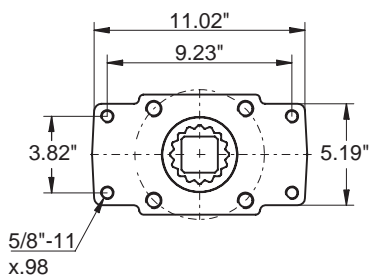
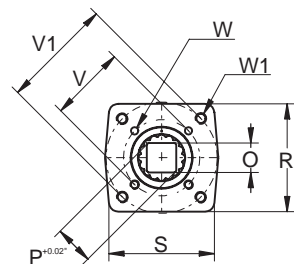
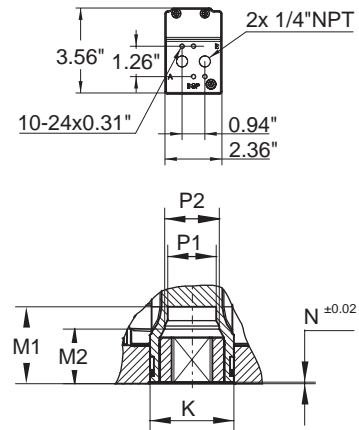
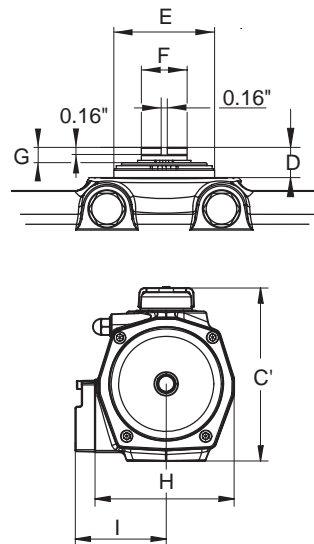
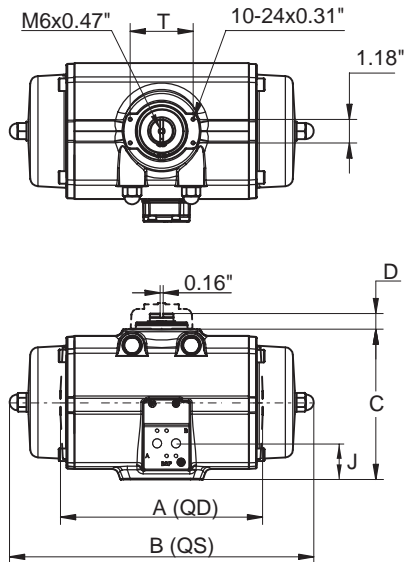
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Sheet No.: 1.603.06 - Rev: A
Date: September, 2006

FieldQ

FieldQ Valve Actuator Dimensions

Imperial Actuators - ISO5211 / NAMUR plate



Note:

1. Dimensions are in inches.
2. The limit stop screws on the Q40 and Q65 are on the opposite side to those on the larger actuators.

Dim.	FieldQ™ actuator models									
	inches	Q40	Q65	Q100	Q150	Q200	Q 350	Q600	Q950	Q1600
A QD	7.09	7.83	8.70	12.20	11.14	12.01	15.24	16.69	20.31	
B QS	7.95	9.80	10.00	8.31	14.09	15.35	16.50	18.09	22.34	
C	4.09	4.59	5.55	5.91	6.30	7.52	9.65	10.87	13.27	
C'	5.39	5.92	6.89	7.24	7.64	8.86	11.38	12.56	14.96	
D	0.79	0.79	0.79	0.79	0.79	0.79	1.18	1.18	1.18	
E	2.20	2.20	2.20	2.56	2.60	2.60	3.43	3.78	3.74	
F	0.63	0.71	0.79	0.87	1.18	1.18	1.38	1.38	1.77	
G	0.37	0.35	0.43	0.39	0.35	0.39	0.77	0.75	1.12	
H	3.54	4.02	4.53	5.08	5.31	6.97	8.23	9.21	10.55	
I	2.95	3.19	3.46	3.82	3.90	4.69	5.28	5.79	6.46	
J	1.56	1.56	1.97	1.81	1.78	1.81	2.08	2.20	2.75	
K	1.30	1.30	1.50	2.17	2.17	2.17	2.68	2.95	3.74	
M1	1.36	1.36	1.36	1.97	1.97	1.97	1.97	2.56	3.19	
M2	-	-	1.06	-	1.46	1.46	-	-	-	
N	0.04	0.04	0.06	0.04	0.06	0.06	0.06	0.06	0.06	
O max.	0.556	0.556	0.753	0.753	0.871	1.068	1.068	1.424	1.817	
O min.	0.551	0.551	0.748	0.748	0.866	1.063	1.063	1.417	1.811	
P	0.71	0.71	0.99	0.99	1.11	1.43	1.43	1.90	2.37	
P1	0.71	0.83	0.93	1.12	1.27	1.27	1.45	1.90	2.38	
P2	-	-	0.99	-	1.43	1.43	-	-	-	
R	2.56	2.76	2.76	3.54	3.54	4.49	4.88	5.12	6.06	
S	2.56	2.76	2.76	3.54	3.54	4.49	4.88	5.59	11.02	
T	3.15	3.15	3.15	3.15	3.15	3.15	5.12	5.12	5.12	
PCD	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F14	F16/F25*	
V	1.969	1.969	1.969	2.756	2.756	2.756	4.016	4.016	6.496	
V1	2.756	2.756	2.756	4.016	4.016	4.016	4.921	5.512	-	
W	1/4"- 20x.39	1/4"- 20x.39	1/4"- 20x.39	5/16"- 18x.39	5/16"- 18x.39	5/16"- 18x.39	3/8"- 16x.63	3/8"- 16x.63	3/4"- 10x1.14	
W1	5/16"- 18x.39	5/16"- 18x.39	5/16"- 18x.39	3/8"- 16x.63	3/8"- 16x.63	3/8"- 16x.63	1/2"- 13x.79	5/8"- 11x.98	-	



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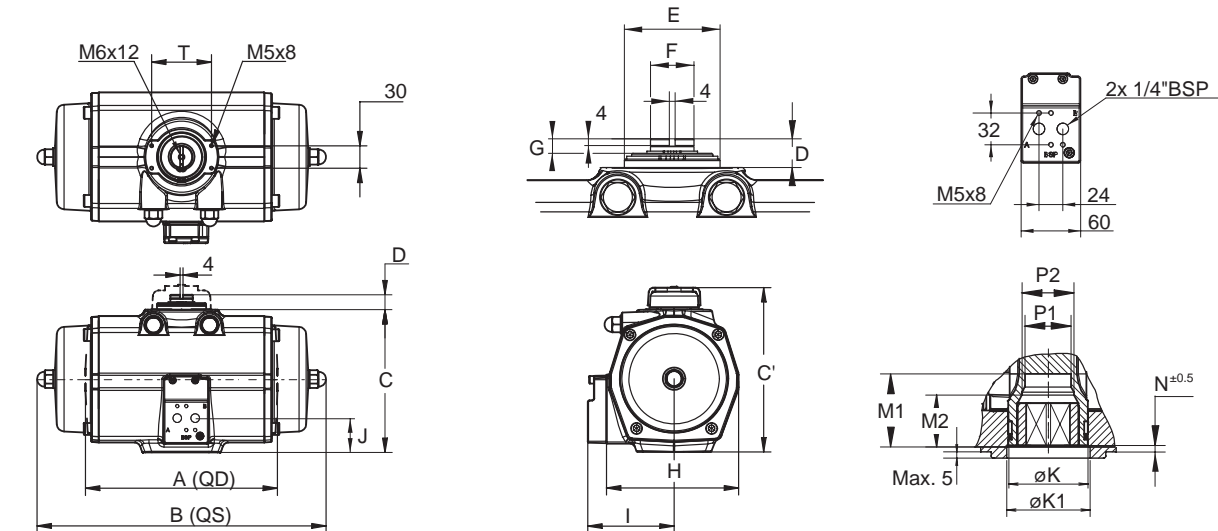
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Sheet No.: 1.603.07 - Rev: A
Date: September, 2006

FieldQ

FieldQ Valve Actuator Dimensions

Metric Actuators - DIN3337 / NAMUR plate



Dim.	FieldQ™ actuator models								
	Q40	Q65	Q100	Q150	Q200	Q 350	Q600	Q950	Q1600
A QD	180	199	221	310	283	305	387	424	516
B QS	202	249	254	211	358	390	419	459.5	567.5
C	104	116.5	141	150	160	191	245	276	337
C'	137	150.4	175	184	194	225	289	319	380
D	20	20	20	20	20	20	30	30	30
E	56	56	56	65	66	66	87	96	95
F	16	18	20	22	30	30	35	35	45
G	9.5	9	11	10	9	10	19.5	19	28.5
H	90	102	115	129	135	177	209	234	268
I	75	81	88	97	99	119	134	147	164
J	40	40	50	46	45	46	53	56	70
K	33	33	38	55	55	55	68	75	95
K1	32	32	40	50	54	54	68	75	95
M1	34.5	34.5	34.5	50	50	50	50	65	81
M2	-	-	27	-	37	37	-	-	-
N	1	1	1.5	1	1.5	1.5	1.5	1.5	1.5
O max.	14.11	14.11	17.13	17.13	22.13	27.13	27.13	36.16	46.16
O min.	14.00	14.00	17.00	17.00	22.00	27.00	27.00	36.00	46.00
P	18.1	18.1	22.2	22.2	28.2	36.2	36.2	48.2	60.2
P1	18.1	21.2	23.1	28.5	32.2	36.5	36.8	48.3	60.5
P2	-	-	25.2	-	36.2	-	-	-	-
Q	35	70	55	55	70	70	85	100	130
R	65	70	70	90	90	114	124	130	154
S	65	70	70	90	90	114	124	142	280
T	80	80	80	80	80	80	130	130	130
PCD	F05	F05	F07	F07	F10	F10	F12	F14	F16
V	50	50	70	70	102	102	125	140	165
W	M6x	M6x	M8x	M8x	M10x	M10x	M12x	M16x	M20x
	10	10	13	13	16	16	20	25	30
Optional dimensions									
K1'	40	40	32	54	50	50	-	-	-
Q'	55	35	35	70	55	55	-	-	-
PCD	F07	F07	F05	F10	F07	F07	F10	F10	F25*
V'	70	70	50	102	70	70	102	102	-
W'	M8x	M8x	M8x	M10x	M10x	M10x	M12x	M16x	-
	13	13	13	16	16	16	20	25	-



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.603.03 - Rev: B
Date: September, 2006

FieldQ

FieldQ Valve Actuator Options

Drive Inserts

Description

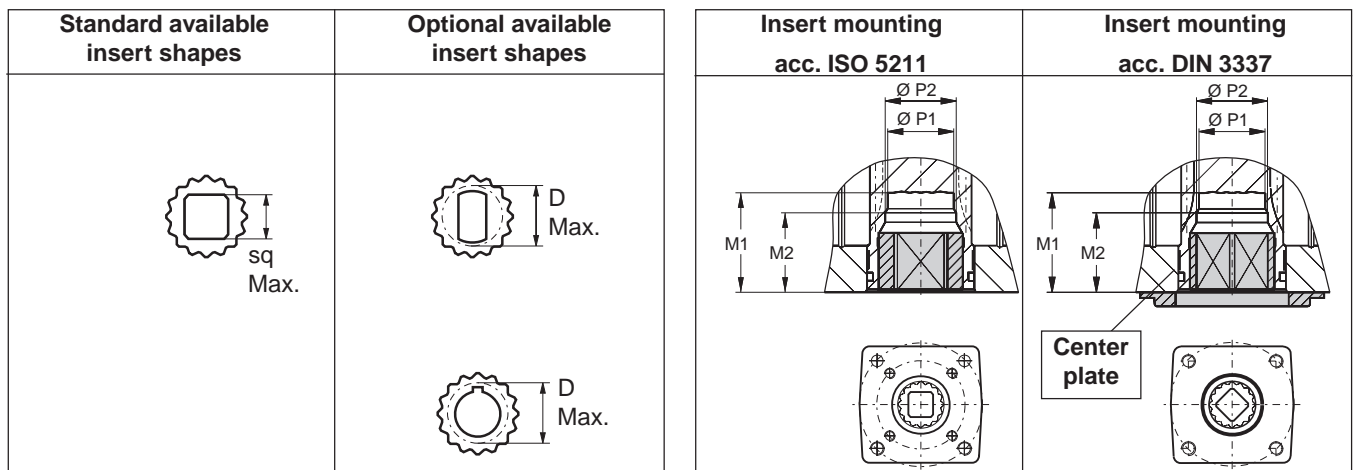
All actuators are fitted with drive inserts. This enables actuators to be directly mounted onto suitable valves and eliminates the need for a bracket and coupling type mounting kit. The use of direct mounts significantly cuts the cost of the valve/actuator assembly.

Standard actuators are fitted with square drive inserts in accordance with ISO 5211 (or DIN 3337), but a wide variety of other inserts are also available. Special inserts may have oversize or undersize squares, double-D and shaft key way forms.

Drive inserts can be supplied on factory built actuators or as loose items and are easily replaceable at distributor or end user level.

Where direct mounts are not possible, for instance on valves with exposed gland packing, the use of inserts often simplifies the design of the mounting kit.

Material : Aluminum alloy
Finish : Anodized



	Inserts with inner-square-dimensions per actuator type																	
	Q40		Q65		Q100		Q150		Q200		Q350		Q600		Q950		Q1600	
	mm.	inch	mm.	inch	mm.	inch	mm.	inch	mm.	inch	mm.	inch	mm.	inch	mm.	inch	mm.	inch
	Standard inserts dimensions																	
ISO5211	14	0.551	14	0.551	19	0.748	19	0.748	22	0.866	27	1.063	27	1.063	36	1.417	46	1.811
DIN3337	14	0.551	14	0.551	17	0.669	17	0.669	22	0.866	22	0.866	27	1.063	36	1.417	46	1.811
	Optional insert dimensions																	
	10	0.394	10	0.394	12	0.472	14	0.551	14	0.551	14	0.551	14	0.551	22	0.866	-	-
	12	0.472	12	0.472	14	0.551	16	0.630	16	0.630	16	0.630	16	0.630	-	-	-	-
	-	-	-	-	16	0.630	22	0.866	17	0.669	17	0.669	17	0.669	-	-	-	-
	-	-	-	-	-	-	24	0.945	19	0.748	19	0.748	19	0.748	-	-	-	-
	-	-	-	-	-	-	27	1.063	24	0.945	24	0.945	24	0.945	-	-	-	-
	Maximum insert dimensions																	
M1	34.5	1.36	34.5	1.36	34.5	1.36	50	1.97	50	1.97	50	1.97	50	1.97	65	2.56	81	3.19
M2	-	-	-	-	27	1.06	37.0	1.46	37.0	1.46	37.0	1.46	-	-	-	-	-	-
P1	18.1	0.71	21.2	0.83	23.5	0.93	28.5	1.12	32.2	1.27	32.2	1.27	36.8	1.45	48.3	1.90	60.5	2.38
P2	-	-	-	-	25.2	0.99	36.2	1.43	36.3	1.43	36.3	1.43	-	-	-	-	-	-
Sq max.	16	0.630	16	0.630	19	0.748	27.0	1.063	27.0	1.063	27.0	1.063	27.0	1.063	36.0	1.417	46.0	1.811
D max.	21	0.827	21	0.827	23.6	0.929	33.6	1.323	33.6	1.323	33.6	1.323	33.6	1.323	45.0	1.772	60.0	2.362



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.606.05 - Rev: A
Date: April 2006

FieldQ

FieldQ Valve Actuator Options

Position Indication - Center Plate

Visual position indicator

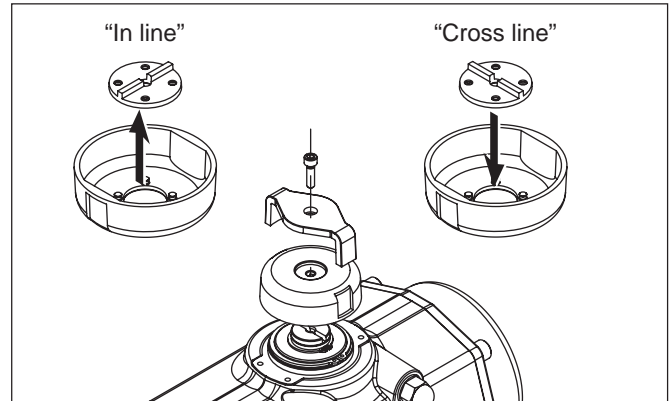
FieldQ valve actuators can be equipped with a large visual position indicator which allows clear indication of the valves position at almost any position.

The FieldQ indicator is designed for position indication of actuators mounted "in line" with the pipe line and mounted "cross line" with the pipe line. To do this the inner part can be removed, turned 90° and pushed back in place.

When supplied, the position indicator will be mounted "in line" as standard. See data sheet 1.606.04 for other indicator mounting options.

Specifications:

Material disk : Nylon PA6, Black
Material arrow : Nylon PA6, Yellow

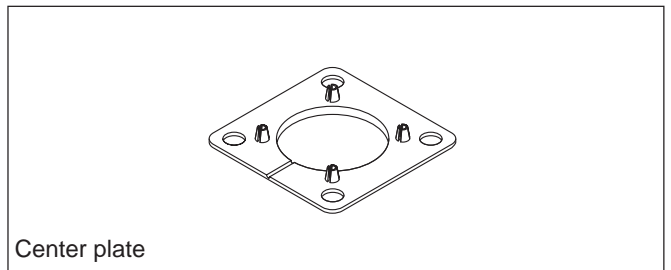


Center plate for DIN3337 applications

FieldQ actuators can be equipped with a centre plate which takes care that actuator and valve (or valve mounting kit) are aligned when mounted. For most of the actuator sizes two center plates are available.

Specifications:

Material plate : Nylon PA6, Black



Center plate

	FieldQ™ actuator models							
	Q40	Q65	Q100	Q200	Q350	Q600	Q950	Q1600
Std	F05	F05	F07	F10	F10	F12	F14	F16
Option	F07	F07	F05	F07	F07	-/-	-/-	-/-



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Process Management

Product data sheet

Sheet No.: 1.605.03 - Rev: C

Date: May, 2006

FieldQ

FieldQ Valve Actuator Options

NAMUR Plate.

Description

The top flange of the FieldQ actuator is standard equipped with a NAMUR drilling pattern. The addition of a NAMUR adaptation plate it makes the FieldQ actuator suitable for mounting all kinds of NAMUR compatible control and feed-back accessories like solenoids, switch boxes or positioners.

Backwards compatibility

Where the FieldQ is meant to be a integrated concept for valve automation, there are a number of reasons for also having NAMUR interfaces:

Emergency repairs.

- When the Control Module requires immediate repair and the process can only be stopped for a limited time, it would be easy to mount standard available NAMUR accessories.

Future updates

- When a plant is not yet ready for digital (bus) communication, but will be upgraded in the (near) future towards this technology, it is easy to change from NAMUR accessories to a FieldQ with bus communication.

Available equipment.

- NAMUR compatible accessories are easy to acquire. Many suppliers offer accessories that can be fitted to NAMUR actuator interfaces.

Construction

The NAMUR adaptation plate is fitted in front of the actuator part of the FieldQ and replaces in fact the Pneumatic Module.

Specifications:

Material	: Aluminum
Air connection	: 1/4" BSP or 1/4" NPT
Finish	: Housing : Anodized with a polyester non-TGIC based powder coating
	: Pistons : Chromitized
Fasteners	: Stainless Steel
Seals	: Nitrile Rubber O-rings

Optional Temperature ranges

Special selected O-ring seals and grease makes it possible to utilize the FieldQ actuator, with NAMUR plate, for various temperature ranges. Three temperature ranges are available:

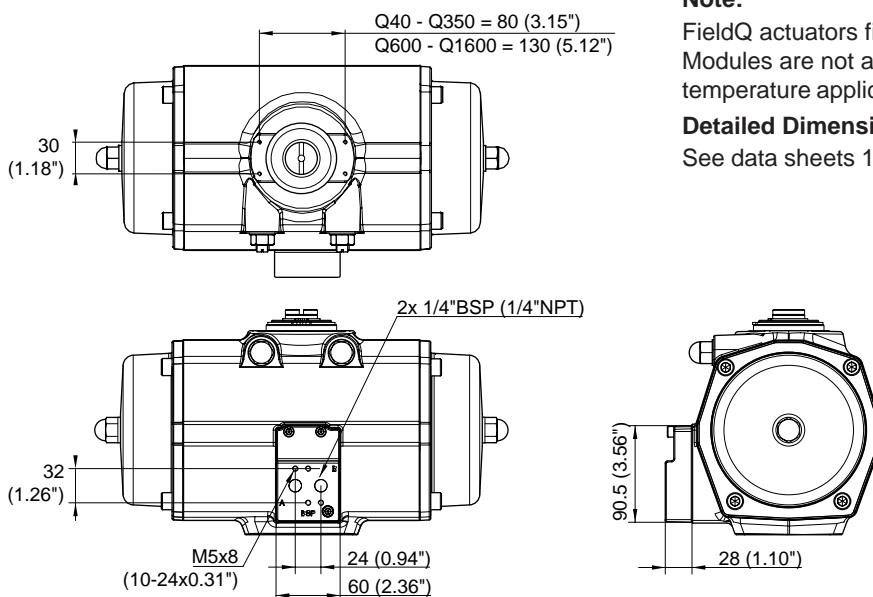
- **Option code ST**: 80°C (176°F) / -20°C (-4°F)
O-ring seals : Nitrile rubber
Grease : Castrol LMX
- **Option code HT**: 120°C (248°F) / -20°C (-4°F)
O-ring seals : Fluoro rubber (FPM) Viton®
Grease : Castrol LMX
- **Option code LT**: 80°C (176°F) / -40°C (-40°F)
O-ring seals : Silicone MVQ 70
Grease : Castrol Optitemp TT1

Note:

FieldQ actuators fitted with Pneumatic Modules and Control Modules are not available for high temperature or low temperature applications.

Detailed Dimensions

See data sheets 1.603.05, 1.603.06 and 1.603.07.



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Process Management

Product data sheet

Sheet No.: 1.604.01 - Rev: E - Page 1 of 3

Date: October, 2006

FieldQ

Smart - Control Modules

QC01: (24VDC) & QC02: (85-254VAC)

Description:

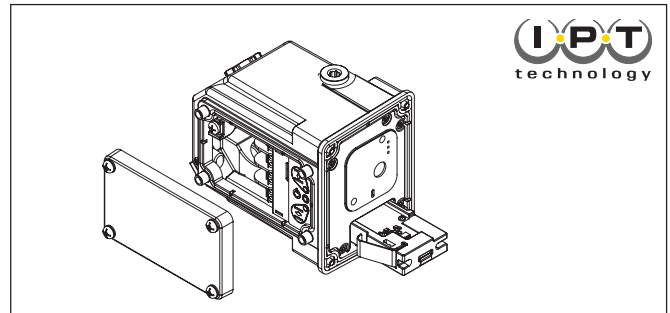
These FieldQ QC01 and QC02 Smart Control Modules offer an integrated concept for "On/Off" valve automation. Its compact and robust construction incorporates IPT technology with auto-initialization for easy setting of feedback switches.

Construction:

The Control Module is mounted at the side of the Pneumatic Module in front of the basic actuator housing. Inside are terminals available for connecting control and feedback wiring. Two cable entries are available for this purpose.

Features:

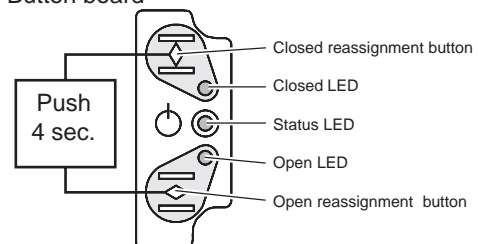
- **Supports both single and double acting actuators.**
- **One entry for all wiring** (control and feedback).
- **IPT-technology** (Intelligent Position Tracking).
- **Automatic initialization** for easy setup of the actuator. **Pressing 4 seconds** simultaneously the "Open" and "Closed" reassignment buttons starts auto-initialization procedure and sets automatically the feedback limit switches.
- **Readjustable or Reversible position feedback** using the reassignment buttons.
- **Three indication LED's** for "Status", "Open" and "Closed" position. Status LED indicates:
 - Initialization procedure running (blinking)
 - Successful initialization procedure (LED is on)
 - No or failed initialization (flashing)
- Control Module **is easily plugged in** the Pneumatic Module.
- Modular functionality for **easy update** towards present and future bus systems.
- **The power supply and all inputs and outputs are galvanic isolated** which offers greater flexibility for systems connection.



General Specifications:

Material housing	: Aluminium alloy
Cable entries	: 2x M20x1.5 or 2x 1/2"NPT
Electrical connections	: Internal terminal strip.
Enclosure	: IP65 / NEMA 4X
Finish	: Polyester non-TGIC based powder coating.
Operating media	: Air or inert gasses, filtered at 50 micron
Temperature	: -20° to +80°C / -4° to 176°F
Dimensions	: See 1.603.01 metric See 1.603.04 imperial/UNC See 1.603.02 DIN 3337

FieldQ Button board



Status LED:

on off LED = **Flashing**

on off LED = **Blinking**

Time →



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.604.01 - Rev: E - Page 2 of 3

Date: October, 2006

FieldQ

Smart - Control Modules

QC01: (24VDC) & QC02: (85-254VAC)

Options:

Manual Control

- Can be added as kit or factory option in 2 versions, "Push button" or a "Push and lock" button.


Glands and plugs

- FieldQ Control Modules QC01 or QC02 can be shipped with plastic or metal glands (M20x1.5 or 1/2"NPT) and rated IP65/NEMA4X or higher.

Hazardous area modules:

- Non-Incendive of Non-Sparking

- Control Modules QC01 and QC02 are available with optional Non-Incendive of Non-Sparking approvals as listed below:

- **ATEX** :  II 3 GD EEx nA IIC T4 T90°C / IP65
: Certificate : KEMA 02ATEX1258X

: Ambient temperature:

- QC01: -20°C...+75°C (-4°F...167°F)

- QC02: -20°C...+73°C (-4°F...163°F)

- **FM** : Non-Incendive, Class I, II, III, Div.2,
Group ABCDFG T4, Type 4X/IP65

: Class I, Zone 2, IIC T4

: Ambient temperature:

- QC01: -20°C...+75°C (-4°F...167°F)

- QC02: -20°C...+73°C (-4°F...163°F)

- **CSA** : Non Incendive: Class I, II, III, Div.2,
Groups ABCDFG, T4

: Ex nA II T4 (Class I, Zone 2)

: Ambient temperature:

- QC01: -20°C...+75°C (-4°F...167°F)

- QC02: -20°C...+73°C (-4°F...163°F)

: Certificate: 1477696

- Intrinsically safe:

- For information about intrinsically safe Control Modules, see 1.604.011

- Short circuit monitoring and line break detection

- For information about Control Modules with short circuit monitoring and line break detection (IEC 60947 part 5-6, NAMUR switch characteristics), see 1.604.011



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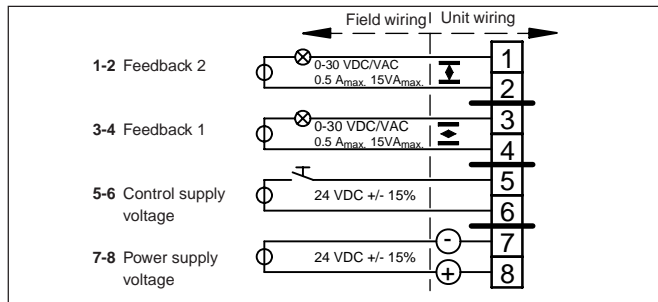
Product data sheet

Sheet No.: 1.604.01 - Rev: E - Page 3 of 3
 Date: October, 2006

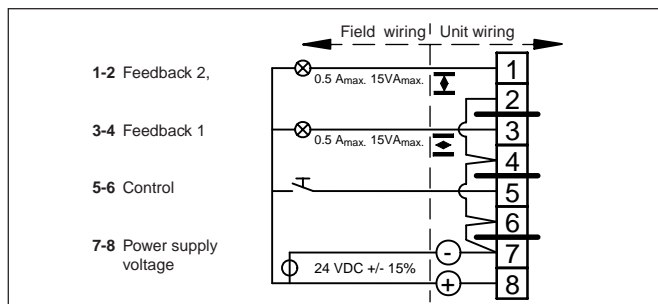
FieldQ

Wiring & Electrical Specifications QC01 & QC 02

QC01



QC01, 24VDC electric connections, separate circuits



QC01, 24VDC electric connections, common "-"

Electrical data QC01 : 24VDC

Power supply input :

Voltage	24 VDC (±15%)
Maximum current	125 mA
Power (nominal)	2.5 W

Control signal input :

Voltage	24 VDC (±15%)
Maximum current	5 mA
Contacts	Potential free

Feedback switches output:

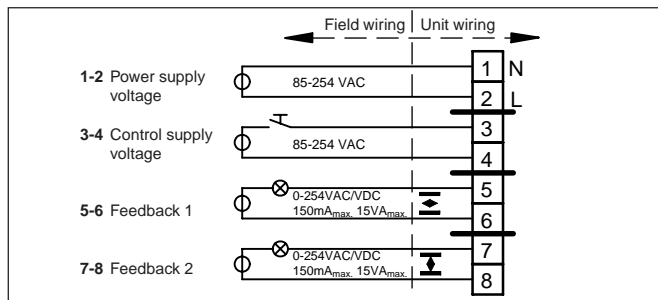
Voltage	0-30 VDC
Current DC	500 mA (maximum) 1 mA (advised minimum)
Resistance (nom.)	0.5 Ohm (On state)
Maximum power	15 W
Electric contacts	Potential free

Polarity:

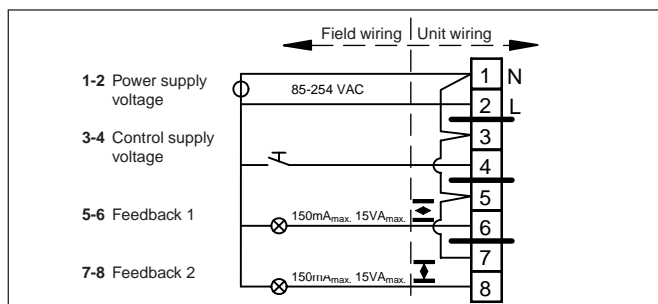
Dependent	Power supply
Independent	Control signal + feedback switches.

- For Non-Incendive (Cl. I Div2) or Non-Sparking (Zone 2) hazardous area applications, see Installation Guide : DOC.IG.QC01.1

QC02



QC02, 85-254VAC electric connections, separate circuits



QC02, 85-254VAC electric connections, single power

Electrical data QC02 - 85-254VAC

Power supply input :

Voltage	85-254V (rated mains 95-230V) 50/60Hz
Maximum current (*)	60 mA
Power (nominal)	2.8 W

Control signal input :

Voltage	85-254V 50/60Hz
Maximum current	2.5mA at 115 VAC 5mA at 230 VAC

Feedback output:

Voltage	0-254 Vac/dc 50/60Hz
Maximum current (AC or DC)	150mA
Maximum power	15 W
Electric contacts	Potential free

(*) The QC02 module has a fuse in the supply live line. It is not allowed to replace this fuse in the field.

- For Non-Incendive (Cl. I Div2) or Non-Sparking (Zone 2) hazardous area applications, see Installation Guide : DOC.IG.QC02.1



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Process Management

Product data sheet

Sheet No.: 1.604.011 - Rev: B - Page 1 of 3

Date: October, 2006

FieldQ

Smart - Control Modules

QC03: IS, QC04: IS-NAMUR, Intrinsically safe

Description:

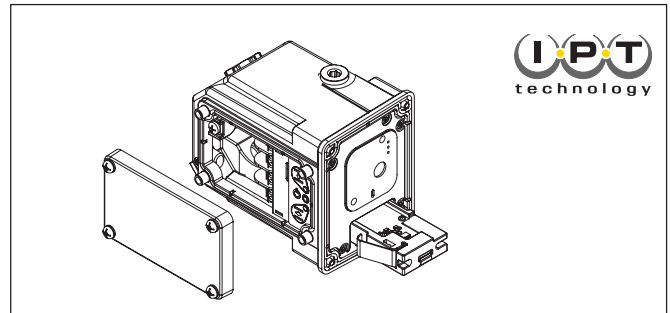
These variations of the FieldQ Smart Control Module offers, an intrinsically safe concept for "On/Off" valve automation. Its compact and robust construction incorporates the same IPT technology and same functionalities as all the other FieldQ Smart Modules have.

Construction:

The Control Module is mounted at the side of the Pneumatic Module in front of the basic actuator housing. Inside are terminals available for connecting control and feedback wiring. Two cable entries are available for this purpose.

Features:

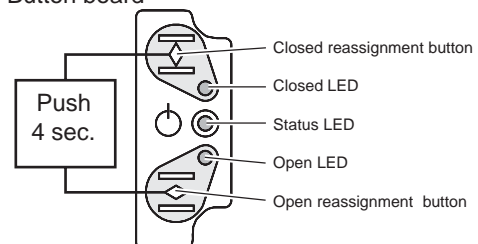
- **Supports both single and double acting actuators.**
- **One entry for all wiring** (control and feedback).
- **IPT-technology** (Intelligent Position Tracking).
- **Automatic initialization** for easy setup of the actuator. **Pressing 4 seconds** simultaneously the "Open" and "Closed" reassignment buttons starts auto-initialization procedure and sets automatically the feedback limit switches.
- **Readjustable or Reversible position feedback** using the reassignment buttons.
- **Three indication LED's** for "Status", "Open" and "Closed" position. Status LED indicates:
 - Initialization procedure running (blinking)
 - Successful initialization procedure (LED is on)
 - No or failed initialization (flashing)
- Control Module **is easily plugged in** the Pneumatic Module.
- Modular functionality for **easy update** towards present and future bus systems.
- **The power supply and all inputs and outputs are galvanic isolated** which offers greater flexibility for systems connection.



General Specifications:

Material housing	: Aluminium alloy
Cable entries	: 2x M20x1.5 or 2x 1/2"NPT
Electrical connections	: Internal terminal strip.
Enclosure	: IP65 / NEMA4X
Finish	: Polyester non-TGIC based powder coating.
Temperature	: -20° to +50°C / -4° to 122°F
Operating media	: Air or inert gasses, filtered at 5 micron
Dimensions	: See 1.603.01 for ISO 5211 (metric) See 1.603.04 for ISO 5211 (Imperial, UNC). See 1.603.02 for DIN 3337

FieldQ Button board



Status LED:

on off  LED = **Flashing**

on off  LED = **Blinking**

Time →



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Product data sheet

Sheet No.: 1.604.011 - Rev: B - Page 2 of 3

Date: October, 2006

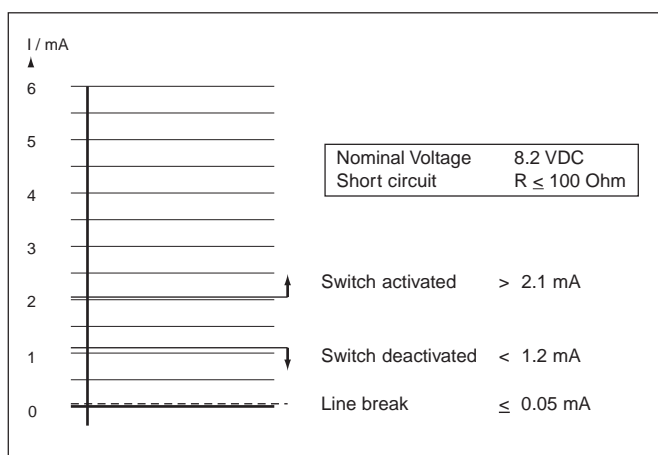
FieldQ

Smart - Control Modules

QC03: IS, QC04: IS-NAMUR, Intrinsically safe

QC04 Short circuit monitoring and line break detection

Control Module QC04 is additionally equipped with NAMUR feedback according IEC 60947 part 5-6 (VDE 0660 sec. 212). In combination with a switch amplifier according this same standard, it offers next to feedback short circuit monitoring and line break detection.



Switch characteristics of NAMUR feedback outputs according IEC60947-5-6.

Options:

Manual Control

- Can be added as kit or factory option in 2 versions, "Push button" or a "Push and lock" button.

Glands and plugs

- FieldQ Control Modules QC03 or QC04 can be shipped with plastic or metal glands (M20x1.5 or 1/2"NPT) and rated IP65/NEMA4X or higher.

Intrinsically safe approvals:

Control Modules QC03 and QC04 have standard intrinsically safe approvals as listed below:

- **ATEX** : $\text{II 1 GD EEx ia IIC T4 T80}^\circ\text{C IP65}$
: T4 @ Ta = $-20^\circ\text{C} \dots +50^\circ\text{C}$ IP65
: Certificate : KEMA 02ATEX1242X
- **FM** : Intrinsically safe, Class I, II, III Div.1,
Groups ABCDEFG, T4, Type 4X/IP65
: Class I, Zone 0, AEx ia IIC T4, IP65,
: Ta = $-20^\circ\text{C} \dots +50^\circ\text{C}$ ($-4^\circ\text{F} \dots 122^\circ\text{F}$)
- **CSA** : Intrinsically safe, Class I, II, III Div.1,
Groups ABCDEFG, T4
: Ex ia IIC T4, IP65, (Class I, Zone 0/1)
: Ta = $-20^\circ\text{C} \dots +50^\circ\text{C}$ ($-4^\circ\text{F} \dots 122^\circ\text{F}$)
: Certificate: 1477696

Note:

- * The assembly of a FieldQ Actuator with the intrinsically safe QC03 or QC04 Control Module, may be used in (ATEX) classified Zones 1, 2 (Gasses) and/or 21, 22 (Dust).



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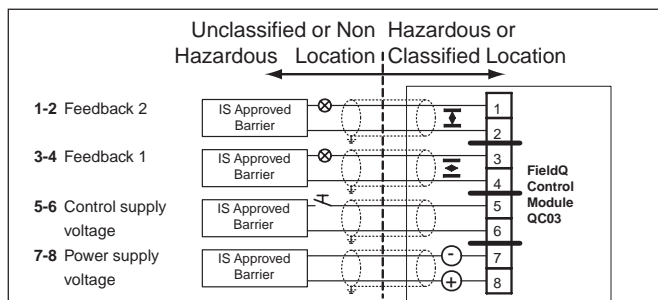
Product data sheet

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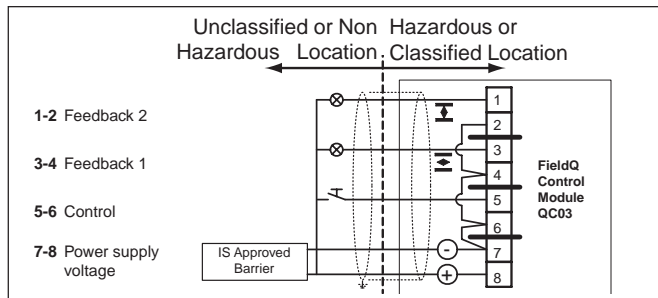
FieldQ

Wiring & Electrical Specifications QC03 & QC04

QC03 IS

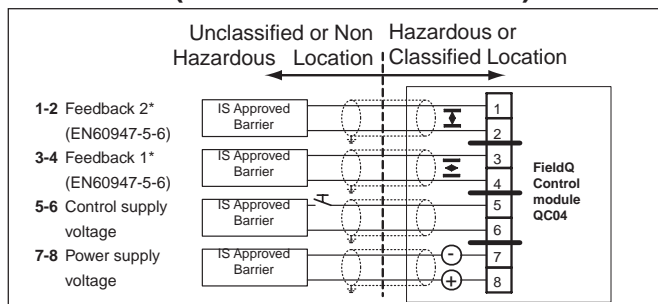


QC03, Terminal connections, with separate circuits

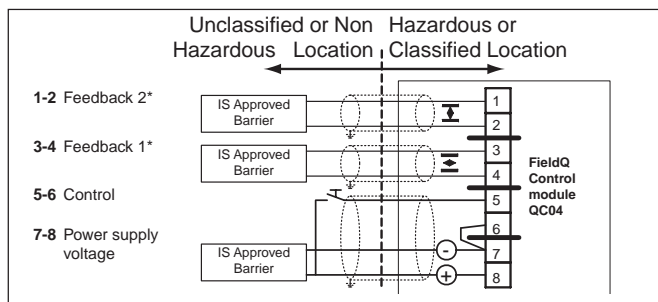


QC03, Terminal connections with common "–"

QC04 IS-N (with NAMUR feedback)



QC04, Terminal connections with separate circuits



QC04, Terminal connections with common "–" for control & power supply

Electrical data	QC03 - IS	QC04 - IS-N
Power supply input:		
Voltage	14 - 17.5 V	14 - 17.5 V
Maximum current	68 mA	68 mA
Maximum Power	1.2 W	1.2 W
Capacity Ci (max.)	15 nF	15 nF
Inductivity Li	0 mH	0 mH
Control signal input:		
Voltage	6 - 30 V	6 - 30 V
Maximum current	5 mA	5 mA
Capacity Ci (max.)	3.2 nF	3.2 nF
Inductivity Li	0 mH	0 mH
Contacts	Potential free	Potential free
Feedback outputs:		
Maximum voltage	30 VDC	IEC 60947-5-6
Maximum current	32 mA	IEC 60947-5-6
Resistance (nom.)	440 Ohm	440 Ohm
Switch resistance (off-state)	300kOhm	10440 Ohm
Maximum power	1.2 W	IEC 60947-5-6
Electric contacts	Potential free	IEC 60947-5-6
Temperature	-20°C to +50°C (-4°F to +122°F)	

Cable range:

Wire range : 2.5mm² max.
 Solid / Stranded wire : 0.2-3.3mm² or 24-12 AWG

Feedback 1 and 2 on QC03:

- Use approved barriers.

Feedback 1 and 2 on QC04:

- Use barrier according EN60947-5-6 (NAMUR) for appropriate signal level. Un = 8.2VDC

QC03 / QC04 Intrinsically Safe Entity Parameters

Circuit	Terminal	Ui	Ii	Pi	Ci	Li
Power Supply	7-8	30VDC	300mA	1.2W	15 nF	0
Control input	5-6	30VDC	300mA	1.2W	15 nF	0
Feedback 1	3-4	30VDC	300mA	1.2W	18 nF	0
Feedback 2	1-2	30VDC	300mA	1.2W	18 nF	0

For more detailed information on Intrinsically safe (Cl. I Div1 / Zone 1) installations, see Installation Guide DOC.IG.QC01.1



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EMERSON
 Process Management

Product data sheet

Sheet No.: 1.604.02 - Rev: C Page 1 of 4
Date: May, 2006

FieldQ

Smart - Control Modules

QC34: FOUNDATION™ Fieldbus

Description:

This FieldQ Control Module offers an integrated concept for valve automation. Its compact and robust construction incorporates basic control and feedback functionality and communicates through the FOUNDATION™- Fieldbus protocol.

Construction

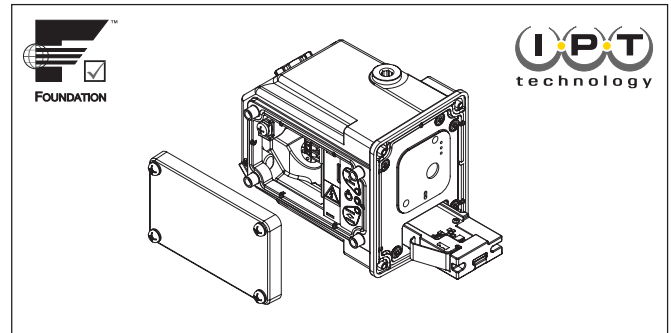
The Control Module is mounted at the side of the Pneumatic Module in front of the basic actuator housing. Inside are terminals available, for connecting the bus wiring and a button board. Two cable entries are available for this purpose.

Features

- FOUNDATION™-Fieldbus digital communication.
- Supports both single and double acting actuators.
- One entry for all wiring (control and feedback).
- IPT-technology (Intelligent Position Tracking).
- Initialization by FOUNDATION™- Fieldbus or Push-button for easy setup of the actuator.
- Pressing 4 seconds simultaneously the "Open" and "Closed" reassignment buttons starts auto-initialization procedure and sets automatically the feedback limit switches.
- Readjustable or Reversible position feedback using the re-assignment buttons or by FOUNDATION™ Fieldbus.
- Adjustable switch points can be adjusted from 5% to 30% before the end of the stroke by FOUNDATION™ Fieldbus.
- Three indication LED's for "Status", "Open" and "Closed" position. Status LED indicates:
 - Initialization procedure running (blinking),
 - Successful initialization procedure (LED is on) or
 - No or failed initialization (flashing)
- Control Module can be easily plugged in the Pneumatic Module.

General specifications

Material housing	: Aluminium alloy
Cable entries	: 2x M20x1.5 or 2x 1/2"NPT
Electrical connections	: Internal terminal strip.
	: Optional quick connectors: 7/8" or M12 connector (see page 2)
Enclosure	: IP65 / NEMA 4X
Finish	: Polyester non-TGIC based powder coating.
Operating media	: Air or inert gasses, filtered at 5 micron.
Temperature	: -20° to +50°C / -4° to 122°F
Dimensions	: See 1.603.01 metric See 1.603.04 imperial/UNC See 1.603.02 DIN 3337



Communication Protocol:

Protocol	: FOUNDATION™-Fieldbus
Transmission	: H1, IEC 61158-2
Maximum current	: 22mA from bus
Required external protection	: Restrict the power supply current to <600mA.

Function blocks

The Control Module provides the following function blocks:

- Resource Block (RB)
- Transducer Block (TB)
- Analog Input (AI) Function Block
- Discrete Output (DO) Function Block
- 2x Discrete Input (DI) Function Block
- PID Function Block

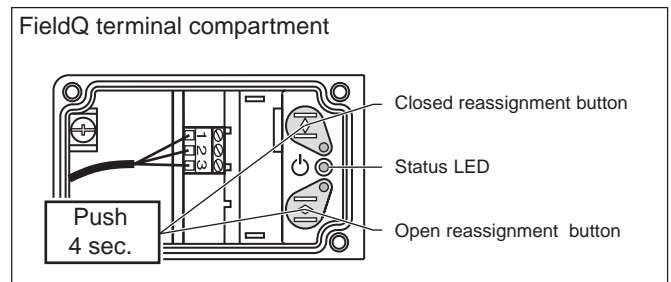
Diagnostics and Alerts

Standard FOUNDATION™- Fieldbus diagnostics and alerts provided meets Emerson PlantWeb Alerts standard.

Applicable diagnostics include:

- Travel times for the Open stroke, Close stroke and Average travel times.
- Cycle Counters for Control Module, Pneumatic Module, Actuator and Valve
- Time in Position
- Various internal electronic health tests.
- Instrument temperature.

For more detailed information on diagnostics see page 3 and 4.



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EMERSON™
Process Management

Product data sheet

Sheet No.: 1.604.02 - Rev: C Page 2 of 4
Date: May, 2006

FieldQ

Smart - Control Modules

QC34: FOUNDATION™ Fieldbus

Options:

Manual Control

- Can be added as kit or factory option in 2 versions, "Push button" or a "Push and lock" button.

Glands, plugs and quick connectors

- FieldQ Control Modules can be shipped with plastic or metal glands (M20x1.5 or 1/2"NPT) and rated IP65 or higher or a prewired quick connector.

Hazardous area executions:

Control Module QC34 with FOUNDATION™ Fieldbus is available with optional intrinsically safe (IS) or Non-Incendive/Non Sparking (NI) approvals as listed below:

- **ATEX** : **Certificate** : KEMA 02ATEX1242X
: **Intrinsically safe***
: Ⓜ II 1 GD EEx ia IIC T4 T80°C IP65
: **Certificate** : KEMA 02ATEX1258X
: **Non-Sparking**
: Ⓜ II 3 GD EEx nA II T4 T90°C / IP65
: Ⓜ II 3 GD EEx nL IIC T4 T80°C / IP65
: Ta = -20°C...+50°C (-4°F...122°F)
- **FM** : **Intrinsically safe**, Class I, II, III Div.1,
Groups ABCDEFG, T4, Type4X/IP65
: Class I, Zone 0, AEx ia IIC T4
: **Non Incendive**, Class I, II, III, Division 2,
: Groups ABCDFG, T4, Type 4X/IP65
: Class I, Zone 2, IIC T4, Type 4X/IP65
: Ta = -20°C to +50°C (-4°F to +122°F)
- **CSA** : **Certificate**: 1477696
: **Intrinsically safe**, Class I, II, III Div.1,
Groups ABCDEFG, T4
: Ex ia IIC T4, IP65, (Class I, Zone 0/1)
: Ta = -20°C...+50°C (-4°F...122°F)
: **Non Incendive**: Class I, II, III Div.2,
Groups ABCDFG, T4
: Ex nA II T4 (Class I, Zone 2)
: Ex nL II T4 (Class I, Zone 2)
: Ta = -20°C...+50°C (-4°F...122°F)

Note:

- * The assembly of a FieldQ Actuator with the intrinsically safe QC34 Control Module, may be used in (ATEX) classified Zones 1, 2 (Gasses) and/or 21, 22 (Dust).

FISCO & FNICO systems

The FieldQ QC34 is suitable for use in a FISCO or FNICO system in accordance with IEC 60079-27 :2005

FOUNDATION™ Fieldbus terminal wiring

Standard PI-filter present.

Detailed Intrinsically safe or Non-Incendive/Non-Sparking wiring instructions, will be shipped with the product, see Installation Guide : DOC.IG.QC34.1

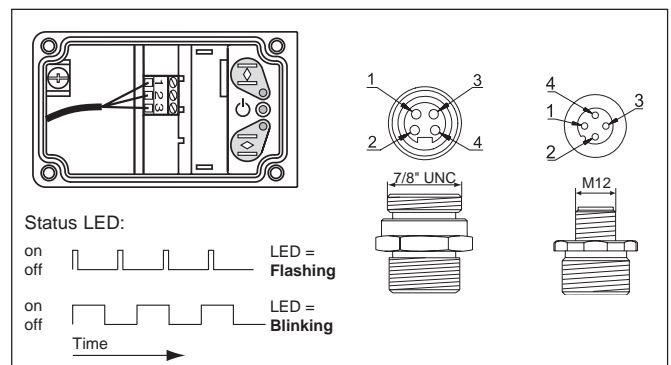
Wiring dimensions

Cable range : 0.14 - 1.5mm² or 26-14 AWG
For massive copper : 2.5mm² max.

Quick connector pinouts:

The Foundation Fieldbus Module can optionally be equipped with prewired quick connectors. Two versions are available: 7/8" or M12 (male chassis part).

Electrical Connections			
Signal	Internal	Quick connector	
	terminal nr	nr	color
FF signal -	1	2	Blue
Shield	2	4	Green / Yellow
FF signal +	3	1	Brown
		3	Not connected



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.604.02 - Rev: C Page 3 of 4
Date: May, 2006

FieldQ

Diagnostics and PlantWeb Alerts

Diagnostics on FOUNDATION™ Fieldbus

The FieldQ Control Module with FOUNDATION™ Fieldbus communication has diagnostic capabilities. These process parameters can give information about communication condition, valve and/or actuator unit. It enables to predict failures in advance and makes maintenance easier to schedule. The following diagnostics are available for the FieldQ:

1 Timer parameters:

- 1 Open and Closed travel time
- 2 High and low limits of Open and Closed travel time
- 3 Average travel times of last 30 strokes of Open and Closed travel.
- 4 High and low limits of average Open and Closed travel time

2 Cycle Counters

1. Control Module - Counts how many times the Control Module cycles (read only).
2. Pneumatic Module - Counts how many times the Pneumatic Module cycles.
3. Actuator - Counts how many times the actuator cycles.
4. Valve - Counts how many times the valve cycles.

3 Time In Position

5 Various internal electronic health tests.

PlantWeb Alerts

PlantWeb Alerts are alerts that have been predefined and categorized for the user. These device alerts can be used to help troubleshoot the instrument (see also page 4). There are three categories:

- Failed alerts,

A failed alert indicates a failure within the device that will make the device, or some part of the device, non-operational.

- Maintenance alerts

A maintenance alert indicates that the device, or some part of the device, needs maintenance soon.

- Advisory alerts

An advisory alert indicates a condition that does not have a direct impact on the device's primary function. If the condition is ignored, the device will eventually fail.

These alerts, when enabled, can participate in the DeltaV alarm interface tools such as the alarm banner, alarm list, and alarm summary.



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EMERSON™
Process Management

Product data sheet

Sheet No.: 1.604.02 - Rev: C Page 4 of 4

Date: May, 2006

FieldQ

Diagnostics and PlantWeb Alerts

Alerts & recommended actions			Alert default setting					
			Advisory		Maintenance		Fail	
Alerts	Recommended actions	enable	mask *	enable	mask *	enable	mask *	
bit 0	Reserved							
bit 1	Internal alerts, bad position sensor	Feedback problem, replace function module when possible	n	n	y	y	n	n
bit 2	Internal alerts, bad temperature sensor	Temperature sensor problem, replace Control Module when possible	n	n	y	y	n	n
bit 3	Internal alerts, Specified system temperature exceeded	Take corrective actions to bring temperature within specified range.	n	n	y	y	n	n
bit 4	Internal alerts, Software error		n	n	y	n	n	n
bit 5	Internal alert, travel deviation	Lost position, Check air pressure	y	y	n	n	n	n
bit 6	Internal alerts, Shutdown is set	Internal communications problem, check shutdown configuration for restart, Replace Control Module.	n	n	n	n	y	y
bit 7	Internal alerts, Undefined error		n	n	y	n	n	n
bit 8	Counter alerts, Control Module life cycle exceeded	Control Module life cycle exceeded, Replace Control Module	n	n	y	y	n	n
bit 9	Counter alerts, Pneumatic Module life cycle exceeded	Pneumatic Module life cycle exceeded, Replace Pneumatic Module.	n	n	n	n	n	n
bit 10	Counter alerts, Actuator life cycle exceeded	Actuator life cycle exceeded, Replace actuator.	n	n	n	n	n	n
bit 11	Counter alerts, Valve life cycle exceeded	Valve life cycle exceeded, Valve requires maintenance.	n	n	n	n	n	n
bit 12	Timer alerts: time in position limit	Time in position exceeded, take appropriate action.	n	n	n	n	n	n
bit 13	Timer alerts: open travel time limit exceeded	Close travel timer exceeded, check valve system.	n	n	n	n	n	n
bit 14	Timer alerts: close travel time limit exceeded	Close travel timer exceeded, check valve system.	n	n	n	n	n	n
bit 15	Initialization Failed (reason from AUTO_INITIALIZATION STATUS)	Check air pressure, check actuator sizing, check valve system.	y	y	n	n	n	n
bit 16	Reserved Primary Value Failure							
bit 18	Reserved HW/SW Incompatibility		n	n	n	n	n	n
bit 19	Reserved IO Failure (FF card lost IO board)	Internal communications are lost, device will act according to shutdown configuration.	y	y	n	n	n	n
bit 20	Reserved Mechanical Failure							
bit 21	Reserved TB NV Memory Failure							
bit 22	Reserved RB NV Memory Failure		y	y	n	n	n	n
bit 23	Reserved TB Electronics Failure		y	n	n	n	n	n
bit 24	Reserved RB Electronics Failure		y	y	n	n	n	n

*) Mask "n" indicates masked out (not visible).

For more detailed information about the configuration of the QC34 Foundation Fieldbus Module see Reference Manual DOC.RM.QC34.E. This manual is available for download from www.FieldQ.com.



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.604.04 - Rev: D, Page 1 of 2
Date: October, 2006

FieldQ

Smart - Control Modules

QC30: AS-Interface

Description:

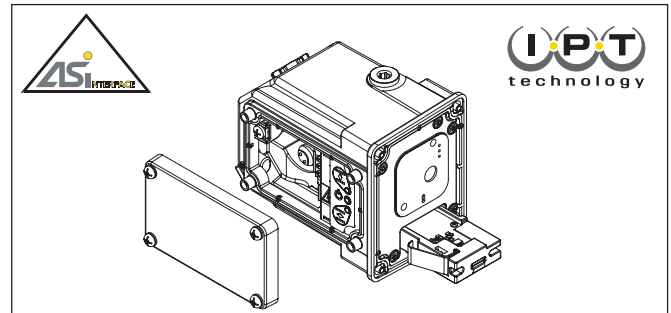
This FieldQ Control Module offers an integrated concept for valve automation. Its compact and robust construction incorporates basic control and feedback functionality and communicates through the ASI 2 or ASI 1 protocol.

Construction

The Control Module is mounted at the side of the Pneumatic Module in front of the basic actuator housing. Inside are terminals available for connecting ASI wiring. Four cable entries are available for this purpose.

Features

- **ASI** digital communication..
- **Supports both single and double acting actuators.**
- **One entry for all wiring** (control and feedback).
- **IPT-technology** (Intelligent Position Tracking).
- Up to **62 devices per segment** for ASI-2 protocol
- **IPT-technology** (Intelligent Position Tracking).
- **Automatic initialization** for easy setup of the actuator. **Pressing 4 seconds** simultaneously the "Open" and "Closed" reassignment buttons starts auto-initialization procedure and sets automatically the feedback limit switches.
- **Adjustable or Reversible position feedback** using the reassignment buttons.
- **Three indication LED's** for "Status", "Open" and "Closed" position. Status LED indicates:
 - Initialization procedure running (blinking)
 - Successful initialization procedure (LED is on)
 - No or failed initialization (flashing)
- Control Module **is easily plugged in** the Pneumatic Module.
- Modular functionality for **easy update** towards present and future bus systems.
- **The power supply and all inputs and outputs are galvanic isolated** which offers greater flexibility for systems connection.



General specifications

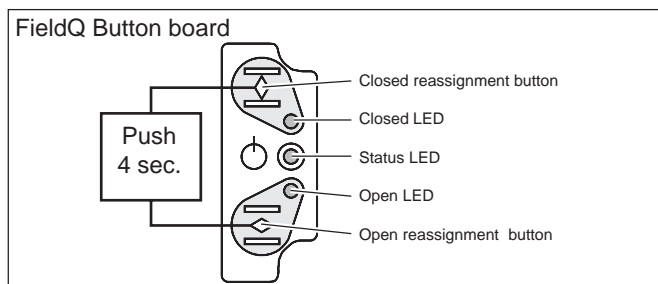
Material housing	: Aluminium alloy
Electrical connections	: Internal terminal strip : Optional 4-pole quick connector M12x1
Cable entries	: 2x M20x1.5 or 2x 1/2"NPT
Enclosure	: IP65 / NEMA 4X
Finish	: Polyester non-TGIC based powder coating.
Operating media	: Air or inert gasses, filtered at 50 micron.
Temperature	: -20° to +80°C / -4° to +176°F
Dimensions	: See 1.603.01 metric : See 1.603.04 imperial/UNC : See 1.603.02 DIN 3337

Communication Protocol:

Protocol	: AS-Interface
Number of devices	: 31 for ASI-1 protocol : 62 for ASI-2 protocol
Current Minimum	: 30 mA (pilot valve off)
Maximum	: 167 mA (pilot valve on)
Protection	: 250mA from AS-Interface, by an internal automatic, resettable fuse.
ASI-Profile V3.0	: S-6.A.E (other profiles optional)

Factory settings:

Factory address	: 00	EID1	: 7
IO code	: 6	EID2	: E
ID code	: A	Parameter	: 00



FieldQ data bits	Functions		
	Type	DI's	DO's
D0	Input	Feedback "Closed"	-/-
D1	Bi-directional	Feedback "Open"	Solenoid Control
D2	Bi-directional	Not used	
D3	Bi-directional	Not used	



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.604.04 -Rev: D, Page 2 of 2
Date: May, 2006

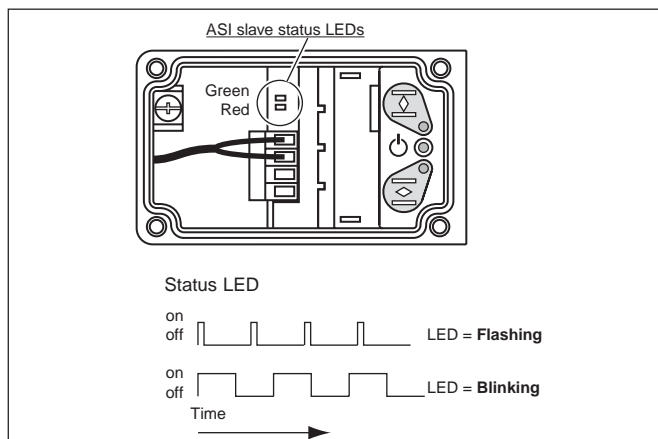
FieldQ

Smart - Control Modules

QC30: AS-Interface

ASI status feedback

Status feedback is provided according to the ASI standard
For more detailed information on button board functionality and LED indications, see Installation Guide : DOC.IG.QC30.1



Options

Manual Control

- Can be added as kit or factory option in 2 versions, "Push button" or a "Push and lock" button.

Glands and plugs

- FieldQ Control Modules can be shipped with plastic or metal glands (M20x1.5 or 1/2"NPT) and rated IP65 or higher.

Hazardous area executions:

- The ASI Control Module QC30 is available with optional Non-Incendive or Non-Sparking approvals as listed below:
 - **ATEX** : II 3 GD EEx nA II T4 T90° / IP65
: Certificate : KEMA 02ATEX1258X
: Ta = -20°C...+75°C (-4°F...167°F)
 - **FM** : Non-Incendive, Class I, II, III, Div.2,
: Groups ABCDFG, T4, Type 4X/IP65
: Class I, Zone 2, IIC T4
: Ta = -20°C...+75°C (-4°F...167°F)
 - **CSA** : Non Incendive: Class I, II, III, Div.2,
: Groups ABCDFG, T4
: Ex nA II T4 (Class I, Zone 2)
: Ta = -20°C...+75°C (-4°F...167°F)
: Certificate: 1477696

ASI terminal wiring connections:

Detailed Non-Incendive / Non-sparking wiring instructions, will be shipped with the product, see control drawing: see Installation Guide : DOC.IG.QC30.1

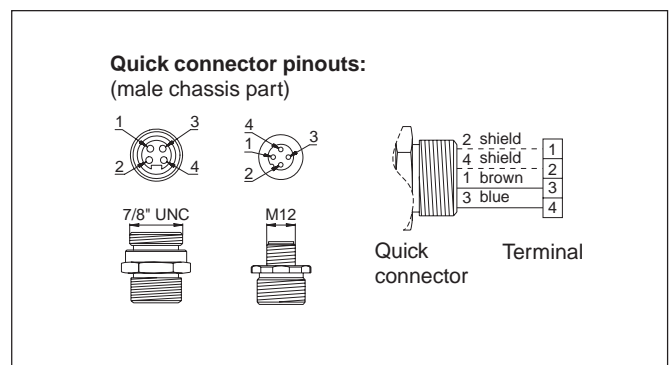
Wiring dimensions

Cable range : 0.14 - 1.5mm² or 28-16 AWG

Quick connector pinouts:

The ASI Module can optionally be equipped with prewired quick connectors. Two versions are available: 7/8" or M12 (male chassis part)

Electrical Connections			
Signal	Internal terminal nr	Quick connector nr	Quick connector color
Shield	1	2	White or Green/Yellow
Shield	2	4	Black or Gray
ASI +	3	1	Brown
ASI -	4	3	Blue



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.604.50 - Rev: A
Date: September, 2006

FieldQ

Control Module Options

Electrical entry options

Description

FieldQ Control Modules are shipped from factory with plugs in the electrical entries. These transport plugs avoid moisture or particles entering the module during transport and installation.

For installation purposes, FieldQ Control Modules can be fitted with glands, plugs or connectors in the electrical entries.

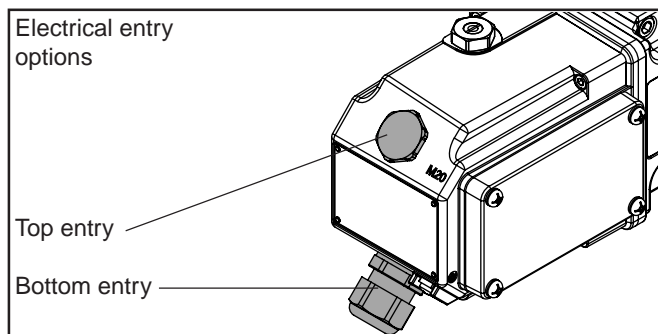
Option ordering codes

Modules QC01, QC02, QC03 and QC04			
Code : Bottom entry		Code : Top entry	
0X	Transport plug	X0	Transport plug
1X	Metal blind plug	X1	Metal blind plug
2X	Plastic gland	X2	Plastic gland
3X	Metal Gland	X3	Metal Gland

Module QC30 and QC34			
Code : Bottom entry		Code : Top entry	
0X	Transport plug	X0	Transport plug
1X	Metal blind plug	X1	Metal blind plug
2X	Plastic gland	X2	Plastic gland
3X	Metal Gland	X3	Metal Gland
4X	Eurofast (M12)	X4	Eurofast (M12)
5X	Minifast (7/8")	X5	Minifast (7/8")

Notes:

- The glands are suitable for cables from 6 to 12mm (1/4" to 1/2").
- Standard plastic glands will be black. For Intrinsically safe units, these glands will be blue.
- For Quick Connector details see data sheets 1.604.02 (QC34;FF) or 1.604.04 (QC30;ASI).



Manual Control

Description

For commissioning, emergency or maintenance purposes, the FieldQ can be supplied with Manual Control options. These options can operate the actuator when there is air pressure available, but no control signal or power supply. Two versions are available:

- 1 **"Push" version.** Pressing the spring return button will operate the actuator. Releasing the button will bring back the actuator in its original position.
- 2 **"Push & Lock" version.** To operate this optional Manual Control, use a screw driver (0.8x4mm). Push and turn it 90°, to lock it in position and keep the actuator in its operated state.
It is possible to rotate the screw multiple cycles. The unit will toggle every 90° between "locked" (1) and "unlocked" (0).

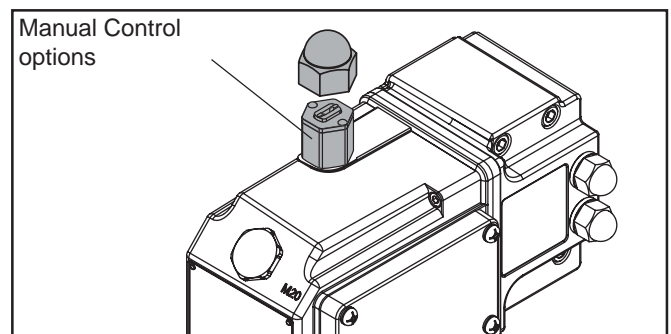
These options can be ordered together with the Control Module or as a kit to be mounted later.

Materials

- Push version : Red anodized aluminum
- Push & Lock version : Red anodized aluminum

Option ordering codes

For modules QC01, QC02, QC03, QC04, QC30 and QC34	
Code	Description
0	No Manual Control
1	Manual Control (Push)
2	Manual Control (Push&Lock)



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.605.01 - Rev: A, Page 1 of 2

Date: August, 2006

FieldQ

Pneumatic Module

Description:

The Pneumatic Module is the pneumatic interface between the Control Module and the actual actuator. It controls the incoming and outgoing airflow. These modules are available in two basic executions:

- Single acting (for spring return actuators)
- Double acting

Valve block:

The Pneumatic Module contains a valve block with two or four diaphragm/poppet valves (for single acting or double acting executions). The valves are operated by a pilot valve in the Control Module.

To assure trouble-free operation, the valve block is equipped with big ports. This enables a large air flow and to makes it less sensitive for contamination of the internals. The large air flow also enables it to be utilized for the entire FieldQ range.

Breather Function:

The spring return models have standard a built in "Breather" function. During the spring stroke, the exhaust air from the center chamber is first fed to the spring chamber preventing air from outside from being sucked into the spring chamber. This reduces the possibility of internal corrosion and maximizes the actuators' working life.

Options

Speed Control

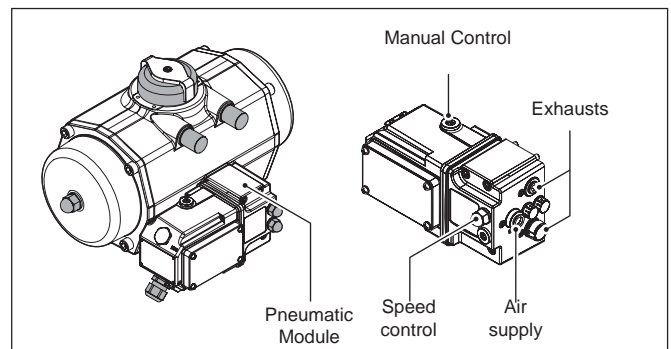
Two integrated speed control options are available:

- 1 Speed control which throttles the air flow in one direction (exhausted air).
- 2 Speed control which throttles the air flow in both directions (supplied and exhausted air).

For more information on speed control see sheet 1.605.02 page 2.

Silencers and vents

The Pneumatic Module can be equipped with either silencers or vents. Dedicated IP65/NEMA4x rated vents are available.

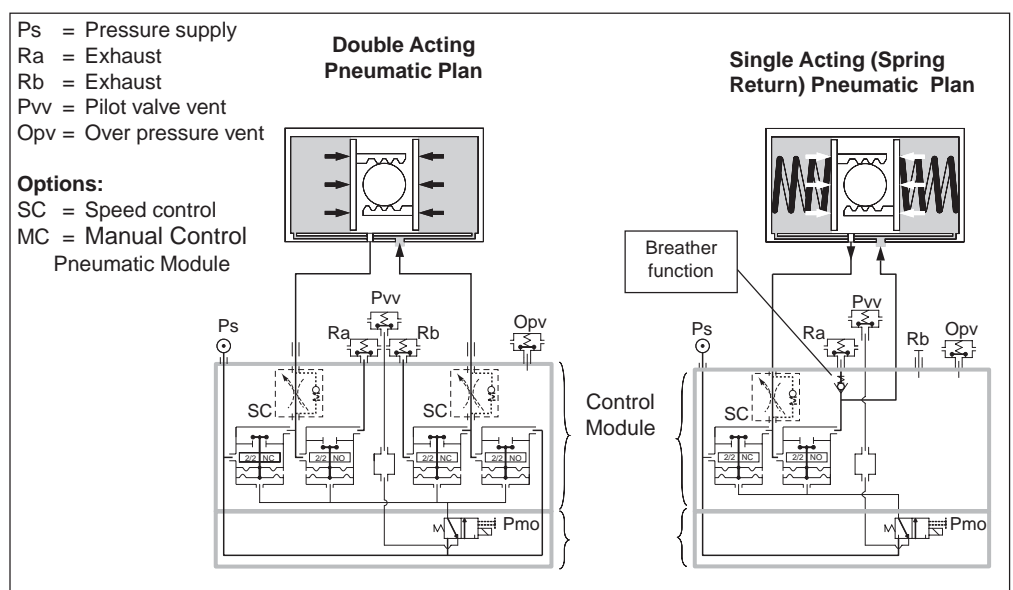


Manual Control

For commissioning, emergency or maintenance purposes, the FieldQ can be supplied with Manual Control options. These options can operate the actuator when there is air pressure available, but no control signal or power supply. Two versions are available:

- Push
- Push and lock

For more detailed information see data sheet 1.604.50



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.605.01 - Rev: A, Page 2 of 2

Date: August, 2006

FieldQ

Specification Pneumatic Module

Function : Double or Single Acting (spring return)

"Breather" function : Standard for single acting actuators

Pressure range

- Double acting : 2 to 8 bar g / 30 to 120psig
- Spring return : 6 to 8 bar g / 87 to 120psig with maximum spring set.
: 3 to 8 bar g / 43 to 120psig with reduced spring set.

Enclosure : IP65/NEMA4X

Air entry : G1/4" or 1/4"NPT

Exhaust ports : G1/4" or 1/4"NPT

Operating media

Air or inert gasses, filtered at 50 micrometer. The following Control Modules require air filtered at 5 micrometer: QC03, QC04, and QC34. See applicable data sheets 1.604.xx.

Temperature

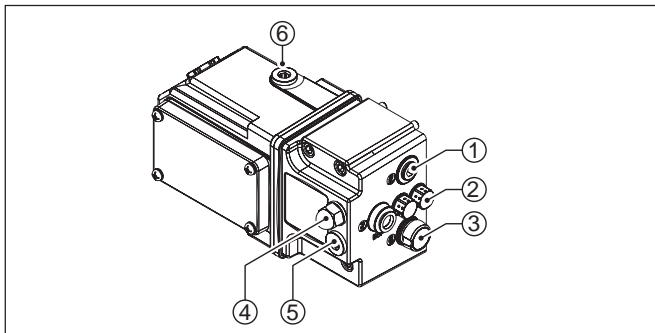
Depends on the utilized Control Module. See applicable data sheets 1.604.xxx.

Base Materials

Body	: Aluminium
Valve housing	: 30% glass-filled Nylon
Finish	: Polyester non-TGIC based powder coating
Valve seats	: Buna-N
Membrane	: Buna-N
Fasteners	: Stainless Steel

Optional parts

1 Plug	NPT	: Steel, zinc plated
	BSP	: Brass, nickel plated
2 Vents		: Stainless Steel (AISI 303)
3 Exhaust	Base	: Nylon
	Cover	: Zinc Nickel plated and transparent passivated
	Option	: Plastic silencer (nylon)
4 Speed Control		
- Throttle		: Stainless Steel (AISI 303)
- Nut Cover		: Nylon PA6
5 Plug		: Brass Nickel plated
6 Manual Control		
- Plug		: Brass Nickel plated
- Push		: Red anodized aluminum
- Push & Lock		: Red anodized aluminum



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Process Management

Product data sheet

Sheet No.: 1.605.02 - Rev: A Page 1 of 2

Date: September, 2006

FieldQ

Pneumatic Module Options

Speed Control on FieldQ actuators

Two integrated speed control options are available:

A "One-way" Speed control throttle

This throttle controls only the air flow exhausted from an air chamber and as such limits the speed of the "Opening" or "Closing" stroke (see table "Speed control configuration").

It consists of :

- 1 Nut cover
- 2 Main throttle with set screw
- 3 Spring loaded counter part

B "Two-way" Speed control throttle

This throttle controls the air flow in and out of an air chamber and as such limits the speed of the "Opening" and "Closing" stroke simultaneously (see table "Speed control configuration"). It consists of :

- 1 Nut cover
- 2 Main throttle with set screw.

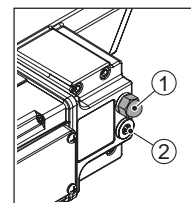
Note:

With the "Two-Way" speed control it is not possible to set both the stroke cycle times to an equal time.

The actual stroke cycle times depend on the actual load on the actuator during the different strokes.

Speed control on spring return actuators

On spring return actuators only the "central" air chamber is pressurized and vented. Therefore both the "One-Way" or the "Two-Way" throttles must be mounted in the port for the central air chamber port (1). Port (2) must be plugged.



Speed control on double acting actuators

On double acting actuators both the "central-" and "end cap" air chambers are pressurized and vented. Therefore both the "One-Way" and "Two-Way" throttles can be mounted in either ports (1) or (2).

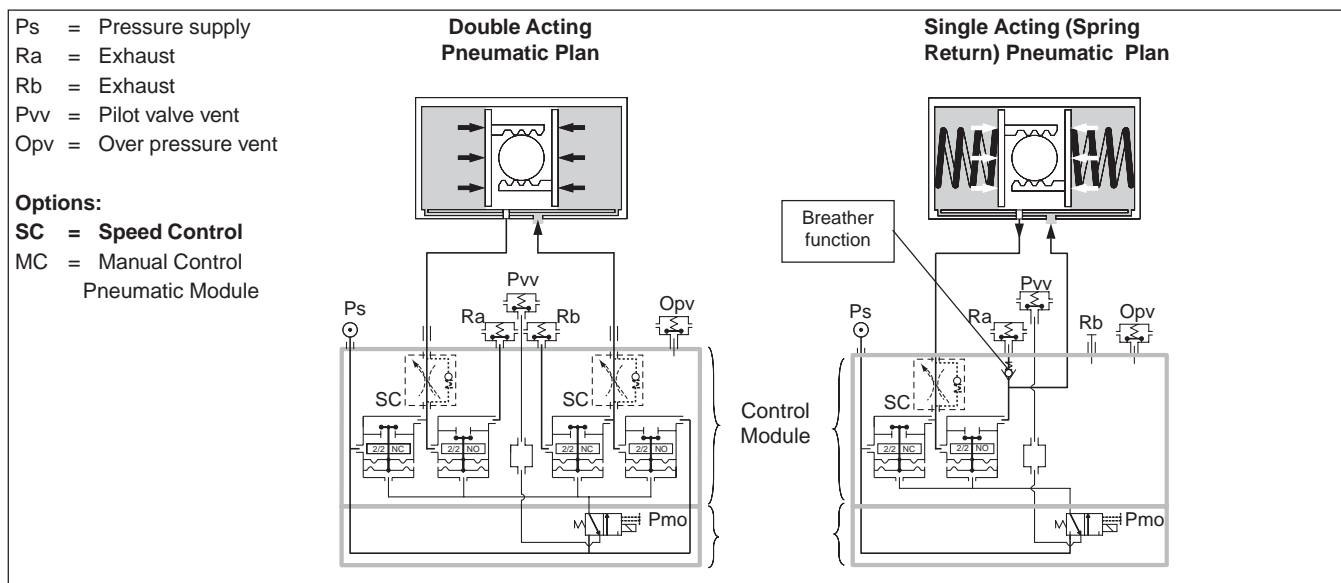
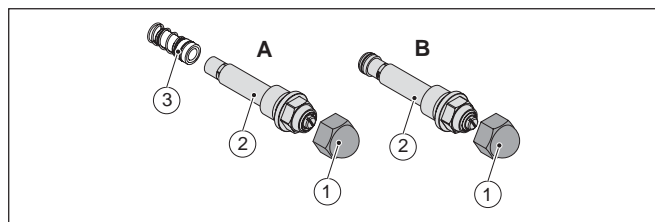
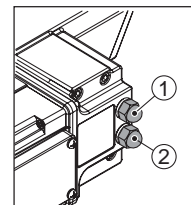


Fig. 5.2



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Product data sheet

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Date: September, 2006

FieldQ

Speed control configuration (see table below)

As indicated, the throttles can be mounted in the port, for the central air chamber(1) or the end cap air chambers(2).

How the actuator functions depends on

- * the action (spring return or double acting)
- * the assembly code (Spring to Close or Spring to Open)
- * which throttle is applied ("One way" or "Two way").

Please see the table below to select the required speed control configuration.

"Opening" or "Closing" stroke

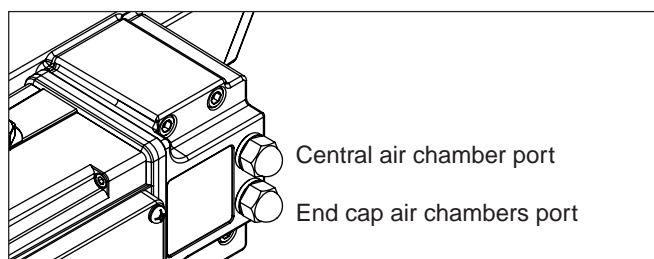
- * Whether the speed of the "Opening" or "Closing" stroke is limited, depends on the assembly code of the actuator.

Independently adjusting of the "Opening" or "Closing" stroke speed

- * The speed of the "opening" stroke and "closing" stroke on double acting actuators with 2x "One-Way" throttles can be set independently from each other.

Speed control and actuator sizing

Installing a Speed control option can result in a non-smooth operation of the actuator ("Stick - Slip" behaviour). This behaviour can happen when the actuator size is too small for the application. Selecting an actuator 1 size larger will solve this "Stick - Slip" behaviour.



Speed control configuration			Spring return actuators		Double acting actuators	
Option code	Throttle or Plug	in air chamber port	"Air Fail to Close" (Code CW) Standard	"Air Fail to Open" (Code CC)	(Code CW) Standard	(Code CC)
QP	Plug	Central	No Speed Control	No Speed Control	No Speed Control	No Speed Control
	Plug	End cap				
Q1	"One way SC"	Central	Clock wise stroke (closing)	Counter Clock wise stroke (opening)	Clock wise stroke (closing)	Counter Clock wise stroke (opening)
	Plug	End cap				
Q2	"Two way SC"	Central	Both strokes simultaneously adjustable	Both strokes simultaneously adjustable	Both strokes simultaneously adjustable	Both strokes simultaneously adjustable
	Plug	End cap				
Q3	"One way SC"	Central	Not applicable	Not applicable	Both strokes independently adjustable	Both strokes independently adjustable
	"One way SC"	End cap				
Q4	Plug	Central	Not applicable	Not applicable	Counter Clock wise stroke (opening)	Clock wise stroke (closing)
	"One way SC"	End cap				



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Process Management

Product data sheet

Sheet No.: 1.606.01 - Rev: B Page 1 of 2

Date: October, 2006

FieldQ

FieldQ valve actuator

Parts and materials Actuator and Modules

Description	Qty.	Description	Specification	Notes
Body	1	Aluminum Alloy	EN AC-AISI10Mg (Cu)	1/5
Pinion	1	Aluminum Alloy	EN AW 7075 T6	2
Upper pinion part	1	Aluminum Alloy	EN AW 7075 T6	2
Guide band housing	2*	Nylatron	PA6.6 + MoS2	-
Washer pinion	2*	CRMZX100	-	-
Bearing ring	2*	Delrin®	POM	-
Limit stop cam	1	Steel	42CrMo4V	-
Piston	2	Aluminum Alloy	EN AC-AISI7Mg	6
End cap QS	2	Aluminum Alloy	EN AC-AISI7Mg	1
End cap QD	2	Aluminum Alloy	EN AC-AISI7Mg	1
Guide band piston	2*	PTFE, Carbon filled	PTFE + 25% C	-
O-ring piston	2*	Nitrile Rubber	NBR	-
O-ring end cap	2*	Nitrile Rubber	NBR	-
O-ring upper pinion part	1*	Nitrile Rubber	NBR	-
O-ring pinion top	1*	Nitrile Rubber	NBR	-
O-ring pinion bottom	1*	Nitrile Rubber	NBR	-
O-ring B-port	2*	Nitrile Rubber	NBR	-
O-ring retainer bolt	4*	Nitrile Rubber	NBR	-
O-ring limit stop bolt	2*	Nitrile Rubber	NBR	-
Outer spring	2	Carbon Spring Steel	EN 10270-1 SH	3
Middle spring	2	Carbon Spring Steel	EN 10270-1 SH	3
Inner spring	2	Carbon Spring Steel	EN 10270-1 SH	3
Spring retainer	2	Steel	St. DC01 EN10139	4
Washer springpack	2	Steel	C35	4
Springpack retainer bolt	2	Stainless Steel	AISI 304 (DIN W nr 1.4301)	-
Washer	4*	Nylon	PA6	-
Nut	4	Stainless Steel	AISI 304 (DIN W nr 1.4301)	-
Nut cover	2	Polyethylene	PE	-
End cap screws	8	Stainless Steel	AISI 304 (DIN W nr 1.4301)	-
Retaining ring pinion large	1*	Carbon Spring Steel	C45, DIN 17200	3
Retaining ring pinion small	1*	Carbon Spring Steel	C45, DIN 17200	3
Limit stop screw	1	Stainless Steel	AISI 304 (DIN W nr 1.4301)	-
Indicator cap	1	Nylon	PA6	-
Indicator arrow	1	Nylon	PA6	-
Indicator insert	1	Nylon	PA6	-
Type plate	1	Stainless Steel	AISI 303 (DIN W nr 1.4305)	-
Hammer drive	1	Stainless Steel	AISI 303 (DIN W nr 1.4305)	-
Insert	1	Aluminum Alloy	EN AW 6082 T5	5

Notes

- 1 See Corrosion protection below
- 2 Hard anodized.
- 3 Deltatone® or Epoxy (black) coating.
- 4 Zinc plated and passivated.
- 5 Anodized.
- 6 Chromatized

Control & Pneumatic Modules

For material specification of the Pneumatic Modules see page 2

Corrosion protection

The applied paint system has passed a 1000 hour salt spray test as detailed by ASTM B117. For a detailed description of the Corrosion protection system see data sheet 1.606.05.

Temperature ranges

The temperature range of FieldQ actuators with NAMUR plates depends on the O-ring seals and the utilized grease.

For a detailed description of possible temperature ranges and applied parts, see data sheet 1.605.03

Repair kit

Parts marked with an * are included in the repair kit



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Process Management

Product data sheet

Sheet No.: 1.606.01 - Rev: B Page 2 of 2

Date: October, 2006

FieldQ

FieldQ valve actuator

Parts and materials Actuator and Modules

Base Materials

Bodies	: Aluminium
Valve housing	: 30% glass-filled Nylon
Finish	: Polyester non-TGIC based powder coating
Valve seats	: NBR
Membrane	: NBR
Fasteners	: Stainless Steel

External parts

1 Plug	NPT	: Steel, zinc plated
	BSP	: Brass, nickel plated
2 Vents		: Stainless Steel (AISI 303)
3 Exhaust	Base	: Nylon PA6
	Cover	: Zinc Nickel plated and transparent passivated
	Option	: Plastic silencer (nylon)

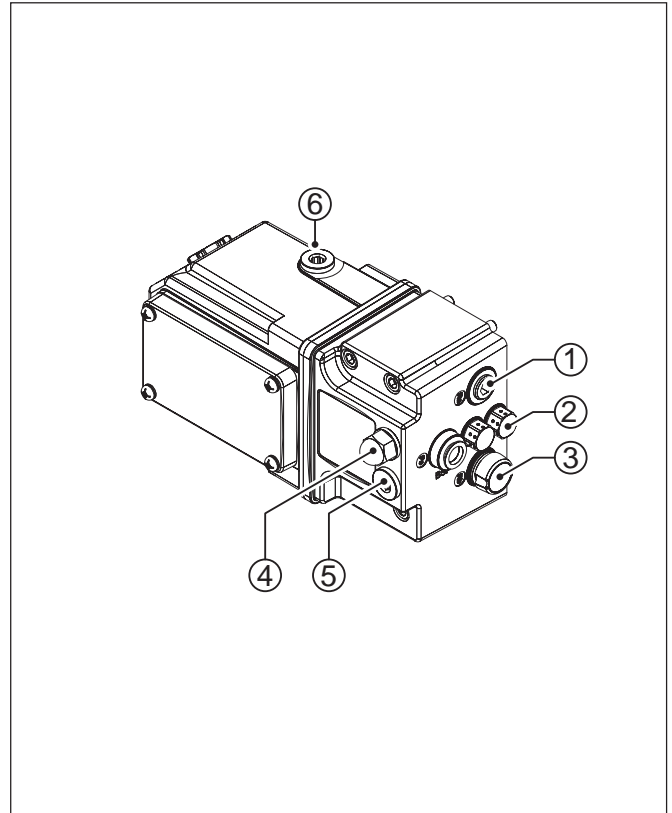
4 Speed Control

- Throttle : Stainless Steel (AISI 303)
- Nut Cover : Nylon PA6

5 Plug : Brass Nickel plated

6 Manual Control

- Push version : Red anodized aluminum
- Push & Lock version : Red anodized aluminum



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.606.07 - Rev: A
Date: May, 2006

FieldQ

FieldQ valve actuator

Corrosion protection system

Description:

The corrosion protection system of FieldQ pneumatic valve actuators consist of the following treatments or materials:

1 Pretreatment

The actuator housings are anodized inside and outside, to give them a durable and superb protection against wear and corrosion.

The anodized base layer, takes care of excellent bonding between the aluminum surface and the coating.

Additionally the pistons are chromatized to prevent the corrosion of the internals.

2 De-greasing.

All aluminum parts are de-greased before the powder coating is applied by washing with an alkaline solution to assure the best bonding between the aluminum surface and the coating.

3 Powder coating.

- Polyester non-TGIC based powder coating for exterior use.
- The powder coating is applied cold using automatic electrostatic spray equipment and is cured at minimum 190°C (374°F) offering excellent light and weather resistance.
- The powder coating thickness is 80 micrometer (3.1 mils).
- Good chemical resistance against most bases, acids, solvents, alkalis and oils at normal temperatures.
- Excellent exterior mechanical durability.
- The coating shows no decline of actuator functions after 1000 hours salt spray test.
- The powder coating is virtually solvent free, and therefore environmentally friendly.

4 High grade & hard anodized aluminum pinion.

Actuators with high grade & hard anodized aluminum pinions, passed a 1000 hours salt spray test.

5 Stainless steel or Deltatone® treated external steel parts.

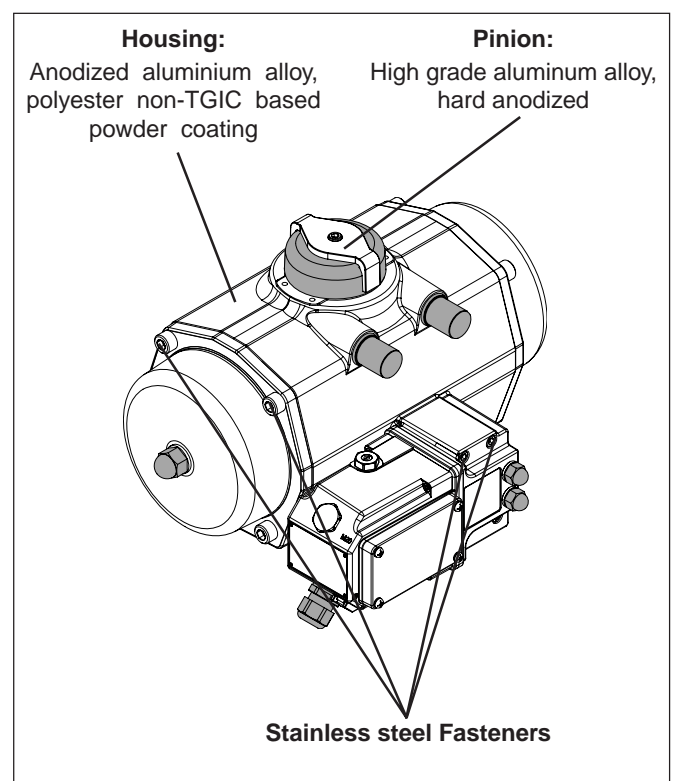
External parts are stainless steel or steel alloy with a Deltatone® treatment

6 Corrosion protected springs on Spring Return actuators

All the springs of spring return actuator are Deltatone® or epoxy (black) coated to prevent the corrosion of the springs and assure a long cycle life.

Technical data:

Coating	: Polyester non-TGIC based powder coating
Thickness	: 80 to 160 micrometer (3.1 to 6.2 mils).
Salt spray test	: 1000h (DIN 50021 / ASTM B117)
Color	: Yellow
Materials	: Housing : Anodized aluminium alloy
	: Pistons : Chromatized
	: Pinion : High grade aluminum alloy, hard anodized
	: Fasteners : Stainless steel or alloy steel with Deltatone treatment
	: Tag plate : Stainless steel



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Product data sheet

Sheet No.: 1.606.02 - Rev: B

Date: October 2005

FieldQ

FieldQ valve actuator

Failure modes

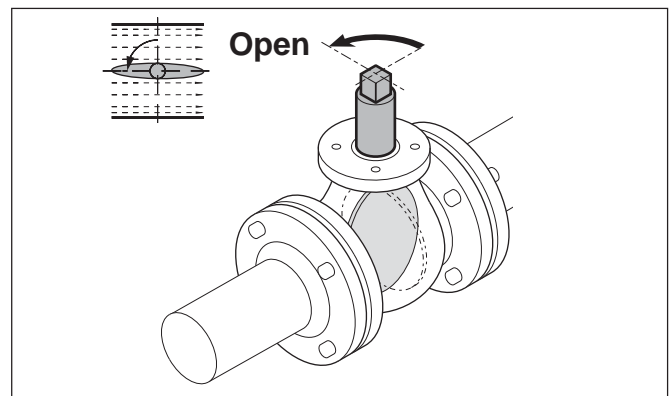
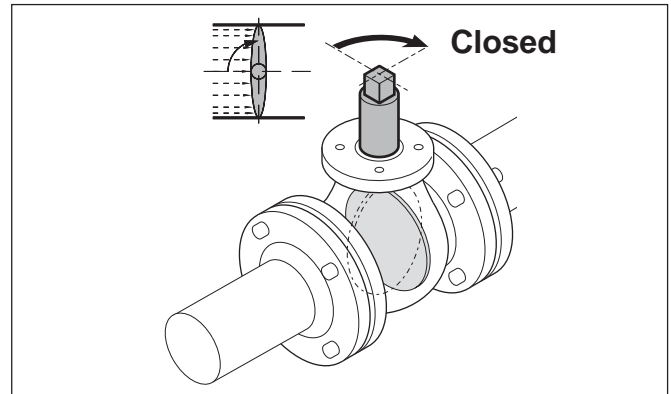
Valve rotation

Valves are normally manufactured so that:

1 The valve is closed : after a clock wise rotation*

2 The valve is open : after a counter clock wise rotation*

*) = views from above



Position after a failure

The position of the actuator after a failure depends on:

- 1 Principles of operation
Spring Return or Double Acting
- 2 Actuator assembly code
See 1.606.03 for Double Acting
See 1.606.04 for Spring Return
- 3 Kind of failure See table.

Principle of operation:	Assembly code :	Kind of failure :	Position :
Double acting actuator	A / B	Pressure	not defined
		Signal	Closed
		Supply voltage	Closed
	C / D	Pressure	not defined
		Signal	Open
		Supply voltage	Open
Single acting actuator (Spring Return)	A / B	Pressure	Closed
		Signal	Closed
		Supply voltage	Closed
	C / D	Pressure	Open
		Signal	Open
		Supply voltage	Open



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EMERSON
Process Management

Product data sheet

Sheet No.: 1.606.03 - Rev: B
Date: October 2006

FieldQ

Actuator assembly codes

Double acting assembly codes

Standard assembly code: (= Clock Wise Rotation)	CW
Visual indicator mounted: (= for In line position indication)	I

Pinion
Position indicator
Pistons

Optional assembly code: (= Counter Clock Wise Rotation)	CC
Visual indicator mounted: (= for In line position indication)	I

Optional assembly code: (= Clock Wise Rotation)	CW
Visual indicator mounted: (= for Cross line position indication)	C

Optional assembly code: (= Counter Clock Wise Rotation)	CC
Visual indicator mounted: (= for Cross line position indication)	C

- A = Pilot valve operated** in Control Module
- B = Pilot valve not operated** in Control Module
- Central air chamber (1) pressurized
- End cap air chambers (2) pressurized

All views are from above. Pistons are shown in inner position



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Product data sheet

Sheet No.: 1.606.04 - Rev: B
Date: October 2006

FieldQ

Actuator assembly codes

Single acting (Spring Return) assembly codes

Standard assembly code: (= Clock Wise Rotation / Spring to Close)	CW
Visual indicator mounted: (= for In line position indication)	I

Optional assembly code: (= Counter Clock Wise Rotation / Spring to Open)	CC
Visual indicator mounted: (= for In line position indication)	I

Optional assembly code: (= Clock Wise Rotation / Spring to Close)	CW
Visual indicator mounted: (= for Cross line position indication)	C

Optional assembly code: (= Counter Clock Wise Rotation / Spring to Open)	CC
Visual indicator mounted: (= for Cross line position indication)	C

- A = Pilot valve operated in Control Module
- B = Pilot valve not operated in Control Module
- Central air chamber (1) pressurized
- Spring stroke (2)

All views are from above. Pistons are shown in inner position



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