SCHWARZ®

New motion starts here

电动执行器

选型资料

SM-SC01 系列

SM-SC02 系列

SML-SC02 系列

SMQ-SC02 系列

1.标准配置说明

1.1 对于所有舒瓦驰电动执行器（通用配置）

- 防护等级为 IP68（符合 DIN EN 60529 标准）。
- 电机绝缘等级为 F，需要时可以做到 H，均能适应热带气候环境。
- 正常环境温度为-30°C 至+70°C，需要时低温型可做到-50°C，高温型可做到+120°C。
- 配带手轮，可进行手动操作，电动时自动切换。
- 开关型动作次数可达 600 次/小时，连续工作 15 分钟；调节型动作次数可达 1200 次/小时。
- 可提供中文说明书。

1.2 对于基本型电动执行器（不含一体化控制单元）

- 开关方向各有限位开关两常开，两常闭；力矩开关一常开一常闭，需要时可做到两常开两常闭。
- 箱体材质为铸钢，箱体外部的螺栓全部为不锈钢材质。
- 电缆进线孔为双密封型，SM(R)30-SM(R)100 为 2*1" + 1*1 1/2"NPT 其他为 2*3/4" + 1*1"NPT。
- 配带机械位置指示。

1.3 对于智能一体化电动执行器（含一体化控制单元 SC01 或 SC02）

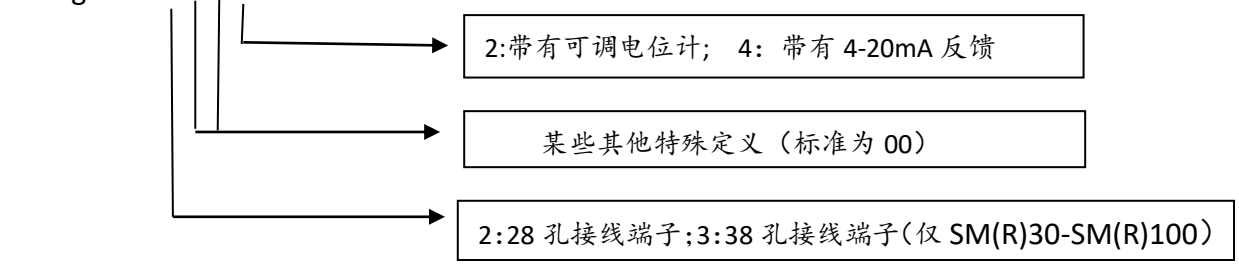
- 配有永磁型绝对编码器，位置力矩等设置保持永久记忆，不依赖电源，所有调试不需开盖。
- 执行器为智能型，带液晶显示，通过蓝牙可与智能手机（IPHONE）进行通讯/调试/故障诊断等。
- 执行器具有历史记忆，可以随时查询发生的操作/设置/事件/故障等信息，并记录信息发生的时间，各保留最新 100 条信息。
- 执行器开关接点：力矩开关 1 常开 1 常闭，限位开关 1 常开 1 常闭；六输出接点对可自由编程。
- SC02 标配为防爆型，防爆等级 II2G EEx d IIC T4。
- SC01 需要时可分体安装。
- 接线孔：SC02 电缆进线孔为双密封型，配 SM(R)30-SM(R)100 为 2*1" + 1*1 1/2"NPT 其他为 2*3/4" + 1*1"NPT；SC01 接线端子为插拔式，电缆进线孔 M32*1.5+M25*1.5+M20*1.5。
- 控制单元壳体材质为特制铝合金，箱体外部的连接螺栓全部为不锈钢材质。

2.接线图的选择

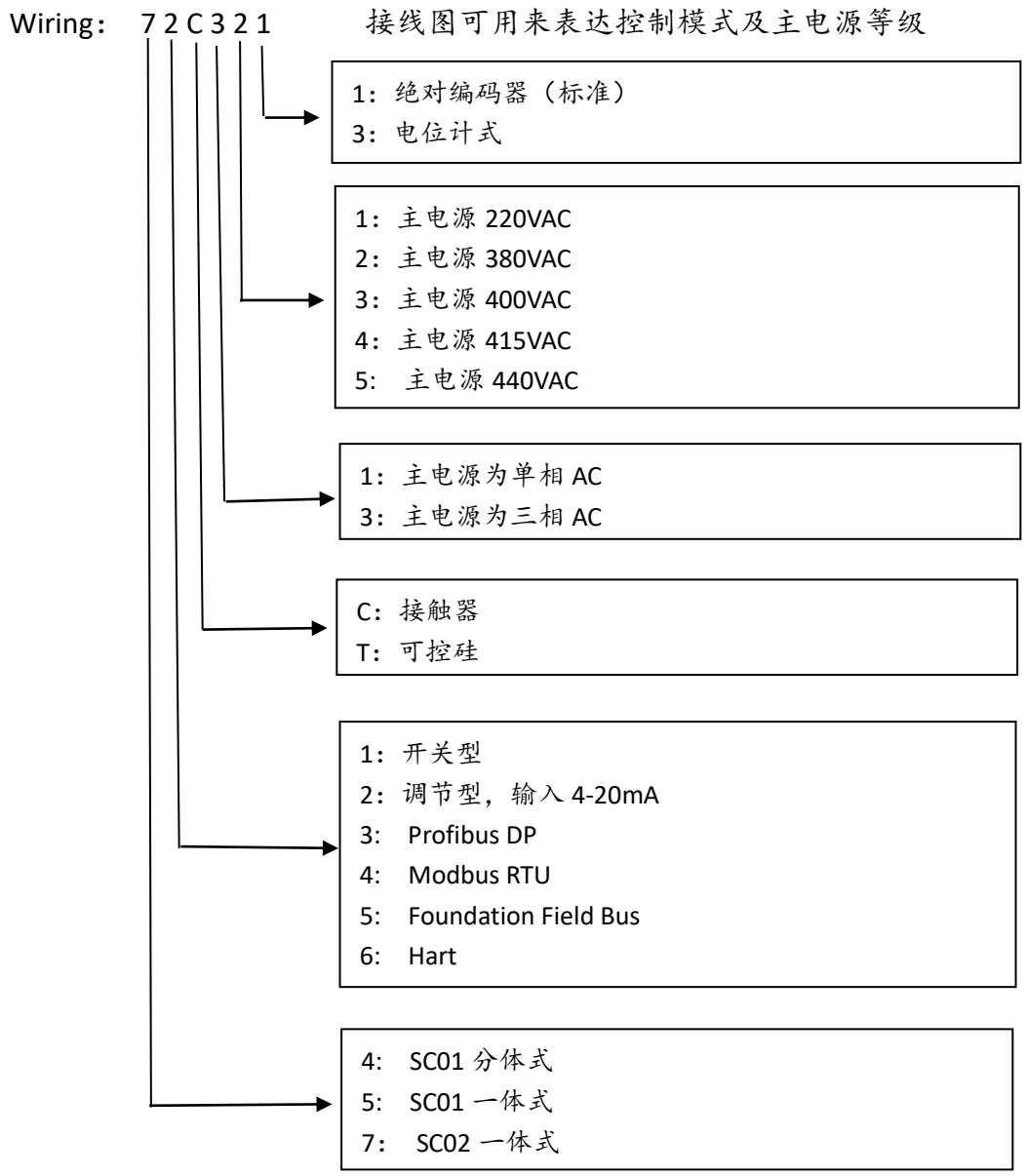
2.1 基本型（不含一体化控制单元）

典型接线图 ST2000（标准型）

Wiring: ST 2 0 0 0



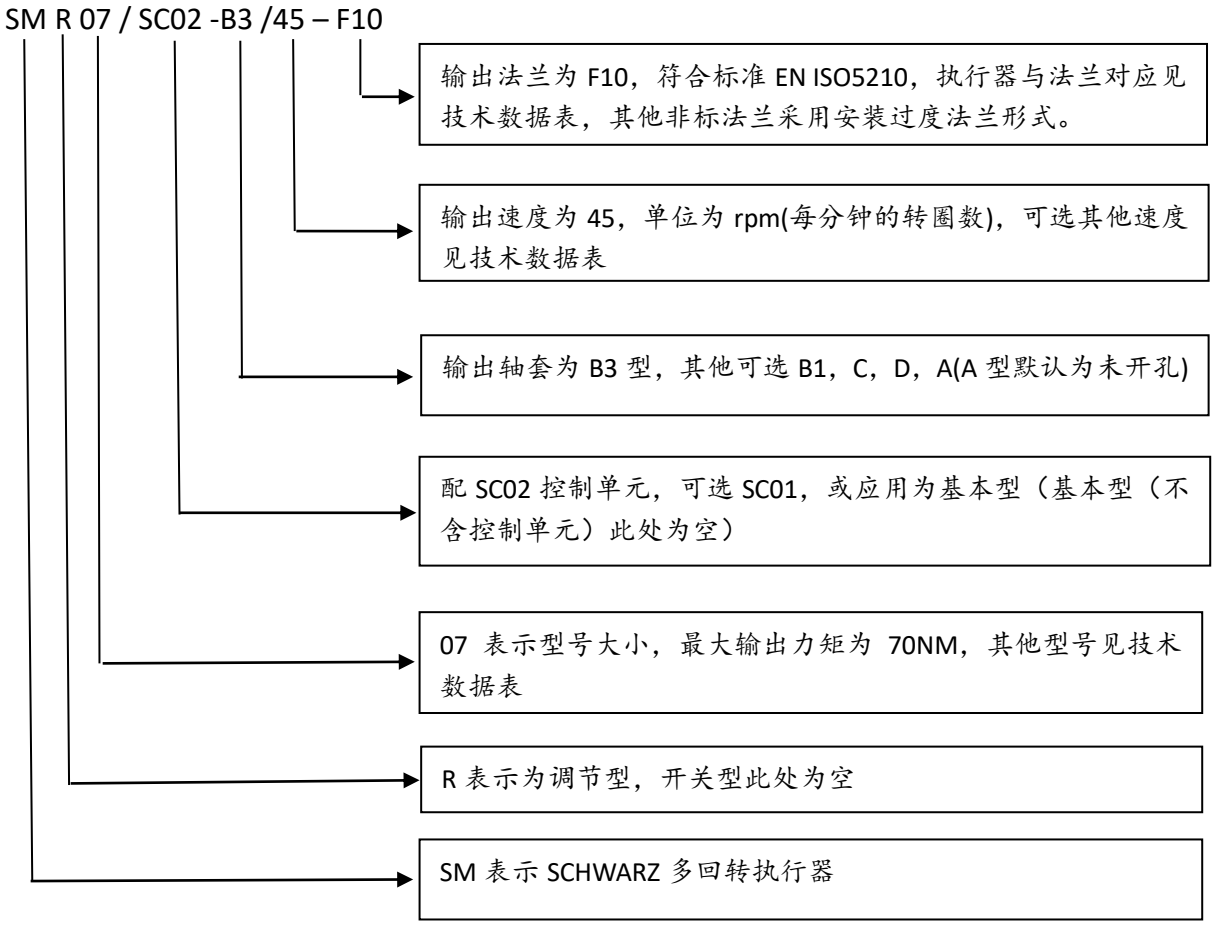
2.2 一体化型（含一体化控制单元 SC01 或 SC02）



3.多回转执行器

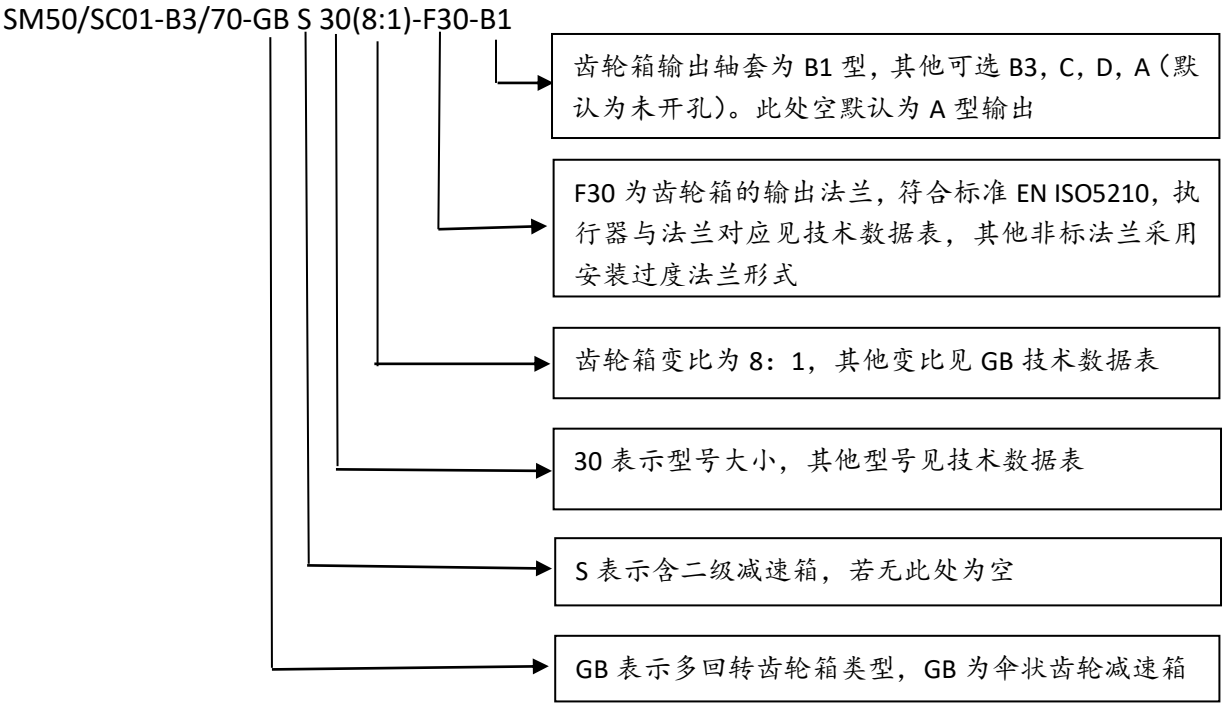
多回转执行器 SM(R)系列可应用为基本型（不含一体化控制单元），可配 SC01，也可配 SC02。

3.1 单独的执行器（不含齿轮箱）



3.2 多回转执行器 SM+多回转齿轮箱 GB

对于力矩比较大，而速度不需很快的场所，SCHWARZ 提供多回转齿轮箱 GB 的解决方案。



信息 SCHWARZ 齿轮箱 GB 有较高输出效率，不含二级减速效率大约为 0.9，含二级减速（即 GBS）大约为 0.85。

上面含有伞齿轮箱 GB 的执行器最终输出速度=执行器输出速度/齿轮箱变比=70/8≈9rpm

上面含有伞齿轮箱的最大实际输出力矩=执行器最大力矩*变比*效率=500*8*0.85=3400NM

注 意 计算出的齿轮箱最大实际输出力矩一般要在齿轮箱的最大输出范围之内，选型不当可能会造成齿轮箱的损坏。

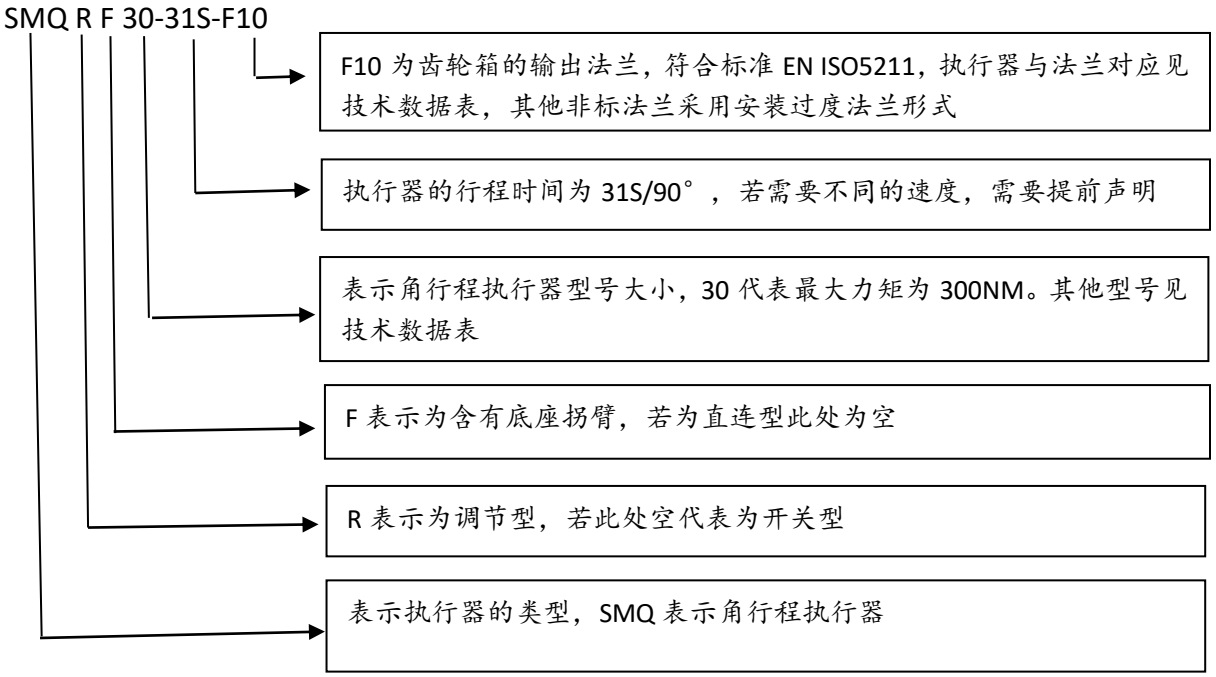
4.角行程执行器

角行程（部分回转）执行器 SMQ(R)系列可应用为基本型（不含一体化控制单元），含一体化控制装置的应用为 SC02。

SMQ 系列角行程执行器可以做到最大力矩 3500NM,更大的角行程采用多回转执行器 SM+部分回转齿轮箱 GW。

信息 在现场空间容许的情况下，对于大于 1500NM 以上的优先考虑后者即 SM+GW 的应用。

4.1 单独的执行器 SMQ 系列（不含齿轮箱）

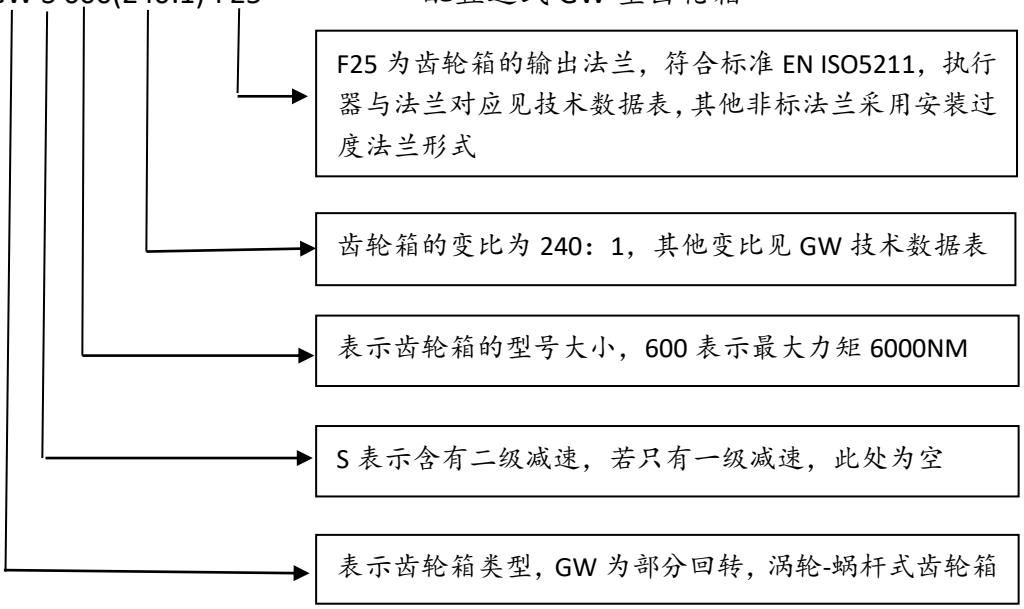


SMQ 直连式轴套默认实心不开孔

4.2 多回转执行器 SM+部分回转齿轮箱 GW

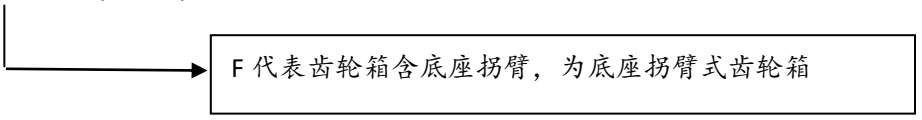
对于力矩比较大的角行程输出，SCHWARZ 提供部分回转齿轮箱 GW 的解决方案。

SMR07/SC02-B3/90-GW S 600(240:1)-F25　　配直连式 GW 型齿轮箱



GW 齿轮箱的输出轴套默认为实心不开孔。

SMR07/SC02-B3/90-GW F S 600(300:1)　　配底座拐臂式 GWF 型齿轮箱



信息 SCHWARZ 齿轮箱 GW 的输出效率不含二级减速大约为 0.40，含二级减速（即 GWS）效率大约为 0.35。

上面齿轮箱 GWS600 行程 90° 的行程时间=变比/4/执行器速度*60=240/4/90*40=50S

上面齿轮箱 GWS600 的最大输出力矩=执行器最大输出力矩*变比*齿轮箱效率≈70*240*0.35=5880NM

注 意　计算出的齿轮箱最大实际输出力矩一般要在齿轮箱的最大输出范围之内，选型不当可能会造成齿轮箱的损坏。

5.直行程执行器

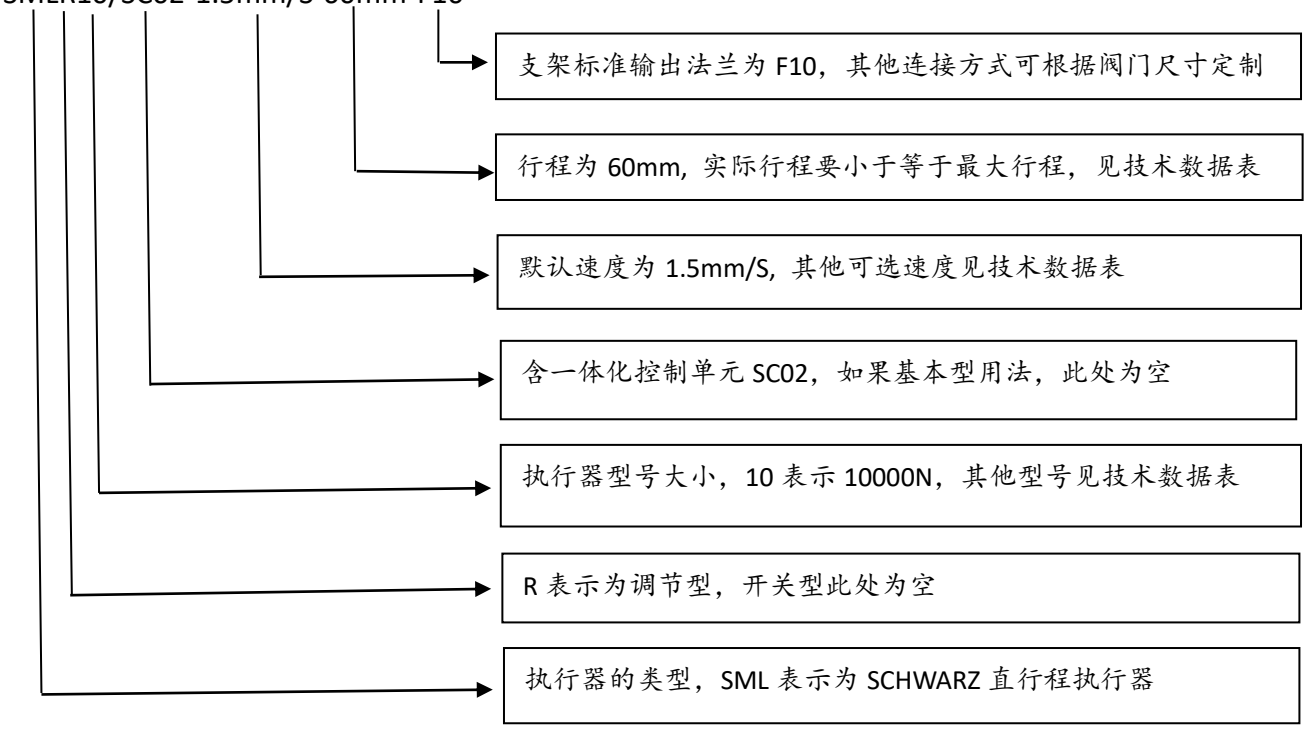
直行程执行器 SML(R)系列可应用为基本型（不含一体化控制单元），含一体化控制装置的应用为 SC02。

SMQ 系列角行程执行器可以做到最大推力 30000N，更大的直行程采用多回转执行器 SM+线性推力器 LT。

信息 SCHWARZ 直行程 SM＋LT 可提供较宽的推力范围，基本可以涵盖 SML 系列，但是对于小推力和单相电源的情况首先考虑 SML 系列，SML 具有较小的体积和重量。

5.1 单独的执行器 SML 系列（不含齿轮箱）

SMLR10/SC02-1.5mm/S-60mm-F10

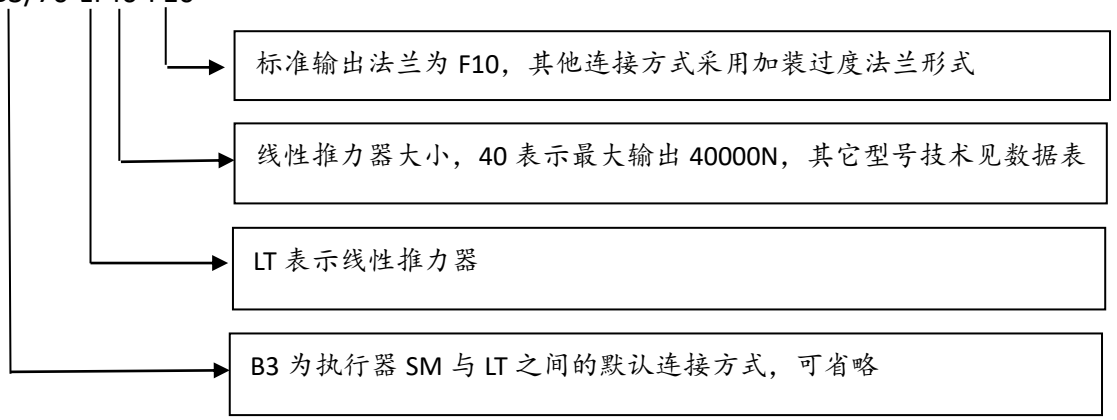


联轴节的尺寸见尺寸图，可根据阀门尺寸定制加工

5.2 多回转执行器 SM+线性推力器 LT

对于直行程较大的输出，SCHWARZ 提供多回转执行器 SM 系列+线性推力器 LT 的解决方案。

SMR12/SC02-B3/70-LT40-F10



信息 SCHWARZ 直行程 SM＋LT 不含与阀门的连接支架，如果需要可定制加工。

附表 1　SM 技术数据表

Electrical data Multi-turn actuators for open-close duty with 3-phase AC motors Short-time duty S2 - 15 min, 380 V/50 Hz													SM04-SM100
Multi-turn actuator				**Motor**									
Type	Valve attah ment	Speed rpm	Torque max. Nm	Type	Power 1) PN (kW)	Speed rpm	Nominal current 2) IN (A)	Current 3) approx. Imax. (A)	Starting current IA (A)	cos ϕ	Schwarz Power class Contactor 4)	Schwarz Power class Thyristor 4)	Approx. Weight (kg)
SM04	F07	11	40	MA04-4-0.13	0.13	1400	0.40	0.5	1.1	0.50	C1	T1	26
		22		MA04-8-0.23	0.23	700	0.60	0.7	2.0	0.57	C1	T1	
		45		MA04-4-0.28	0.28	1400	1.00	1.1	2.5	0.42	C1	T1	27
		90		MA04-4-0.32	0.32	1400	0.80	1.4	4.6	0.60	C1	T1	
		135		MA04-4-0.41	0.41	1400	0.90	1.6	4.6	0.70	C1	T1	
		180	35	MA04-2-0.48	0.48	2800	1.05	1.7	4.6	0.70	C1	T1	
SM07	F10	11	70	MA07-4-0.15	0.15	1400	0.60	0.7	1.7	0.38	C1	T1	28
		22		MA07-8-0.24	0.24	700	0.70	1.1	3.2	0.52	C1	T1	
		45		MA07-4-0.47	0.47	1400	1.70	2.1	4.8	0.42	C1	T1	29
		90		MA07-4-0.59	0.59	1400	1.70	2.6	9.5	0.53	C1	T1	
		135		MA07-4-0.73	0.73	1400	1.80	3.2	9.5	0.62	C1	T1	
		180	60	MA07-2-0.81	0.81	2800	1.98	3.4	9.5	0.62	C1	T1	
SM12	F10	9	120	MA12-4-0.29	0.29	1400	1.10	1.2	3.2	0.40	C1	T1	31
		18		MA12-4-0.48	0.48	700	1.40	1.6	4.7	0.52	C1	T1	
		35		MA12-4-0.72	0.72	1400	2.60	2.7	8.9	0.42	C1	T1	34
		70		MA12-4-1.14	1.14	1400	3.20	3.8	17	0.54	C1	T1	
		105		MA12-4-1.56	1.56	1400	3.70	5.5	17	0.64	C1	T2	
		140	100	MA12-2-1.64	1.64	2800	3.90	5.8	17	0.64	C1	T2	
SM30	F14	9	300	MA30-4-0.43	0.43	1400	1.10	1.7	5.5	0.60	C1	T1	52
		18		MA30-8-0.67	0.67	700	1.60	3.2	9.5	0.64	C1	T1	
		35		MA30-4-1.06	1.06	1400	2.60	4.2	17	0.62	C1	T1	56
		70		MA30-4-1.93	1.93	1400	4.90	7.4	40	0.60	C1	T2	
		105		MA30-4-2.40	2.40	1400	5.60	12	40	0.65	C1	T2	
		140	250	MA30-2-2.52	2.52	2800	5.90	12	40	0.65	C1	T2	
SM50	F14	9	500	MA50-4-0.66	0.66	1400	1.80	3.2	9.8	0.56	C1	T1	54
		18		MA50-8-1.28	1.28	700	3.80	5.3	19	0.51	C1	T1	
		35		MA50-4-2.10	2.10	1400	5.60	7.9	40	0.57	C1	T2	61
		70		MA50-4-3.75	3.75	1400	9.50	14	61	0.60	C2	—	
		105		MA50-4-4.28	4.28	1400	10.00	22	61	0.65	C2	—	
		140	400	MA50-2-4.75	4.75	2800	11.10	23	61	0.65	C2	—	
SM100	F16	9	1000	MA100-4-1.09	1.09	1400	2.90	5.3	23	0.57	C1	T1	77
		18		MA100-8-1.91	1.91	700	5.10	9.2	42	0.57	C1	T2	
		35		MA100-4-4.16	4.16	1400	8.90	14	63	0.71	C2	—	88
		70		MA100-4-6.32	6.32	1400	12.00	26	126	0.80	C3	—	
		105		MA100-4-7.10	7.10	1400	13.00	37	126	0.83	C3	—	92
		140	800	MA100-2-8.30	8.30	2800	15.20	47	126	0.83	C3	—	

1) The nominal electrical power can be calculated using the following formula: $P = U \times I \times \cos\phi \times \sqrt{3}$

2) Current at operating torque

3) Current at max. torque. We recommend to select switchgears according to these values.

4) Assignment of switchgears when using SCHWARZ controls of types SC01. C1≤3KW; 3KW<C2≤6KW; C3>6KW; T1≤1.5KW; 1.5KW<T2≤3KW

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this docum

Electrical data Multi-turn actuators for open-close duty with 3-phase AC motors Short-time duty S2 - 15 min, 380 V/50 Hz													SMR04-SMR100
Multi-turn actuator				**Motor**									
Type	Valve attachment	Speed rpm	Torque max. Nm	Type	Power1) PN (kW)	Speed rpm	Nominal current 2) IN (A)	Current 3) approx. Imax. (A)	Starting current IA (A)	cos ϕ	Schwarz Power class Contactor 4)	Schwarz Power class Thyristor 4)	Approx. Weight (kg)
SMR04	F07	11	40	MA04-4-0.13	0.13	1400	0.40	0.5	1.1	0.50	C1	T1	26
		22		MA04-8-0.23	0.23	700	0.60	0.7	2.0	0.57	C1	T1	
		45		MA04-4-0.28	0.28	1400	1.00	1.1	2.5	0.42	C1	T1	27
		90		MA04-4-0.32	0.32	1400	0.80	1.4	4.6	0.60	C1	T1	
SMR07	F10	11	70	MA07-4-0.15	0.15	1400	0.60	0.7	1.7	0.38	C1	T1	28
		22		MA07-8-0.24	0.24	700	0.70	1.1	3.2	0.52	C1	T1	
		45		MA07-4-0.47	0.47	1400	1.70	2.1	4.8	0.42	C1	T1	29
		90		MA07-4-0.59	0.59	1400	1.70	2.6	9.5	0.53	C1	T1	
SMR12	F10	9	120	MA12-4-0.29	0.29	1400	1.10	1.2	3.2	0.40	C1	T1	31
		18		MA12-4-0.48	0.48	700	1.40	1.6	4.7	0.52	C1	T1	
		35		MA12-4-0.72	0.72	1400	2.60	2.7	8.9	0.42	C1	T1	34
		70		MA12-4-1.14	1.14	1400	3.20	3.8	17	0.54	C1	T1	
SMR30	F14	9	300	MA30-4-0.43	0.43	1400	1.10	1.7	5.5	0.60	C1	T1	52
		18		MA30-8-0.67	0.67	700	1.60	3.2	9.5	0.64	C1	T1	
		35		MA30-4-1.06	1.06	1400	2.60	4.2	17	0.62	C1	T1	56
		70		MA30-4-1.93	1.93	1400	4.90	7.4	40	0.60	C1	T2	
SMR50	F14	9	500	MA50-4-0.66	0.66	1400	1.80	3.2	9.8	0.56	C1	T1	54
		18		MA50-8-1.28	1.28	700	3.80	5.3	19	0.51	C1	T1	
		35		MA50-4-2.10	2.10	1400	5.60	7.9	40	0.57	C1	T2	61
		70		MA50-4-3.75	3.75	1400	9.50	14	61	0.60	C2	—	
SMR100	F16	9	1000	MA100-4-1.09	1.09	1400	2.90	5.3	23	0.57	C1	T1	77
		18		MA100-8-1.91	1.91	700	5.10	9.2	42	0.57	C1	T2	
		35		MA100-4-4.16	4.16	1400	8.90	14	63	0.71	C2	—	88
		70		MA100-4-6.32	6.32	1400	12.00	26	126	0.80	C3	—	

1) The nominal electrical power can be calculated using the following formula: $P = U \times I \times \cos\phi \times \sqrt{3}$

2) Current at operating torque

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4) Assignment of switchgears when using SCHWARZ controls of types SC01. C1≤3KW; 3KW<C2≤6KW; C3>6KW; T1≤1.5KW; 1.5KW<T2≤3KW

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附表 3　SM 轴套数据表

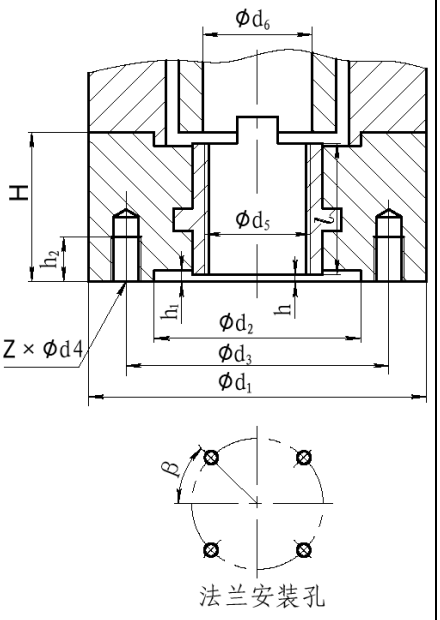


表 1　**阀杆螺母连接 （A 型连接）**　单位：mm

机 型 / 代 号	SM(R)07-F10	SM(R)12-F10	SM(R)30-F14 SM(R)50-F14	SM(R)100-F16
法兰代号	F10	F10	F14	F16
最大推力	40	70	160	250
Φd1	Φ125	Φ125	Φ175	Φ210
Φd2	Φ70	Φ70	Φ100	Φ130
Φd3	Φ102	Φ102	Φ140	Φ165
Φd4	M10	M10	M16	M20
Φd5 max	Φ28	Φ40	Φ58	Φ75
Φd6	Φ34	Φ42	Φ60	Φ80
h	1	1	2	2
h1	3	3	4	5
h2	15	15	25	35
H	50	55	65	80
l	50	55	65	80
Z	4	4	4	4
β	90°	45°	45°	45°

执行机构通过 A 型驱动器的驱动螺母与阀门阀杆连接，在传递转矩的同时承受一定的轴向推力。

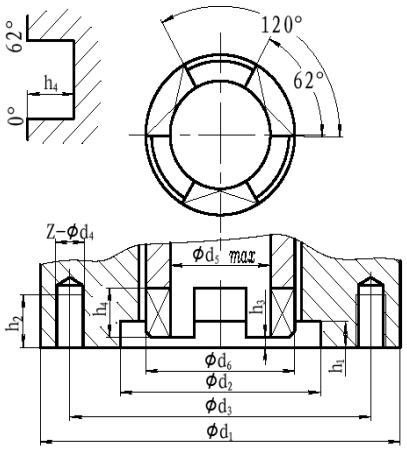


表 2　**三爪连接（B 型连接）**　单位：mm

机型 / 代号	SM(R)07-F10	SM(R)12-F10	SM(R)30-F14 SM(R)50-F14	SM(R)12-F10
Φd1	Φ125	Φ125	Φ175	Φ210
Φd2 H9	Φ70	Φ70	Φ100	Φ130
Φd3	Φ102	Φ102	Φ140	Φ165
Φd4	M10	M10	M16	M20
Φd5 max	Φ42	Φ42	Φ60	Φ80
Φd6	Φ55	Φ55	Φ80	Φ105
h1	3	3	4	5
h2	15	15	25	35
h3	2	2	3	4
h4	8	8	10	12
Z	4	4	4	4

执行机构主机只适用于传递转矩（不能承受轴向推力）的应用场合。因此，不能直接连接需要传递轴向推力的阀门。主机可与二级减速器、A 型驱动器（能够承载轴向推力）、直行程驱动器连接，以驱动相应的阀门。

附表 3　SM 轴套数据表

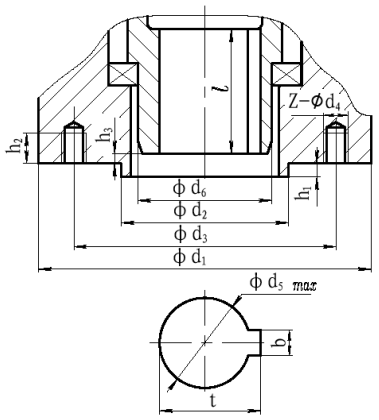


表 3　　**大轴径平键连接　（B1 型连接）**　　单位：mm

机型 / 代号	SM(R)07-F10	SM(R)12-F10	SM(R)30-F14 SM(R)50-F14	SM(R)100-F16
Φd1	Φ125	Φ125	Φ175	Φ210
Φd2 f8	Φ70	Φ70	Φ100	Φ130
Φd3	Φ102	Φ102	Φ140	Φ165
Φd4	M10	M10	M16	M20
Φd5 H9	Φ42	Φ42	Φ60	Φ80
Φd5 min	Φ	Φ	Φ	Φ
Φd6	Φ55	Φ55	Φ80	Φ105
h1	3	3	4	5
h2	15	15	25	30
h3	1	1	2	3
t	45.3	45.3	64.4	85.4
b	12	12	18	22
Z	4	4	4	4
l	45	45	65	80

驱动装置与阀门连接的法兰尺寸遵行 EN ISO5210 标准

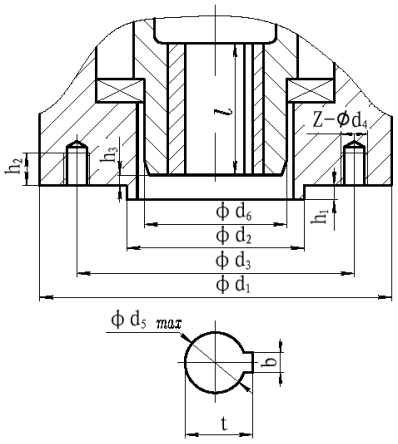


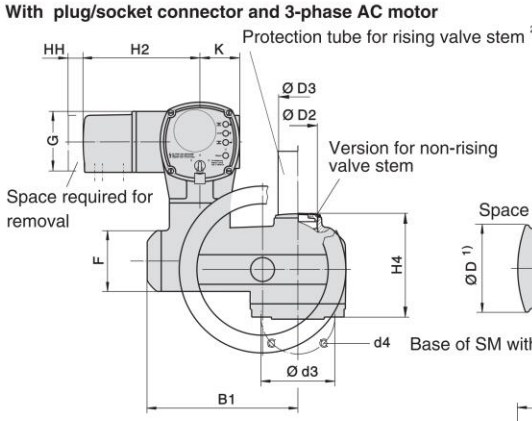
表 4　　**小轴径平键连接　（B3 型连接）**　　单位：mm

机型 / 代号	SM(R)07-F10	SM(R)12-F10	SM(R)30-F14 SM(R)50-F14	SM(R)100-F16
Φd1	Φ125	Φ125	Φ175	Φ210
Φd2 f8	Φ70	Φ70	Φ100	Φ130
Φd3	Φ102	Φ102	Φ140	Φ165
Φd4	M10	M10	M16	M20
Φd5 H9	Φ16	Φ20	Φ30	Φ40
Φd5 max	Φ20	Φ28	Φ40	Φ55
Φd6	Φ55	Φ55	Φ80	Φ105
h1	3	3	4	5
h2	15	15	25	30
h3	1	1	2	3
t	18.3	22.8	33.3	43.3
b	5	6	8	12
Z	4	4	4	4
l	45	45	65	80

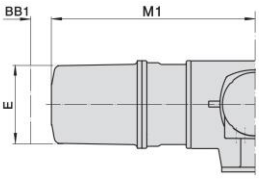
驱动装置与阀门连接的法兰尺寸遵行 EN ISO5210 标准

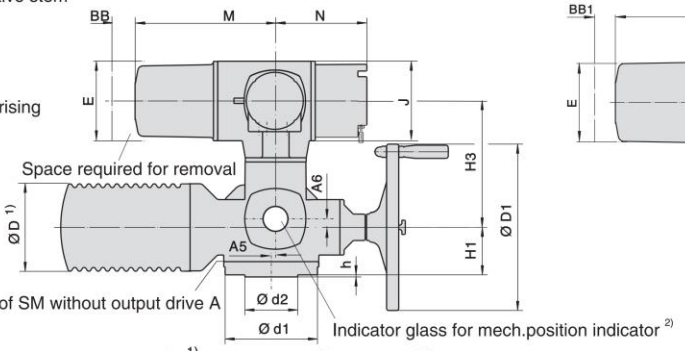
执行机构与阀杆直径较小的阀门、输入轴直径较小的二级减速器连接时，执行器与被连接件采用中间过渡套连接。被连接件的最大直径不大于表中 Φd5 max 的值。

With plug/socket connector and 3-phase AC motor



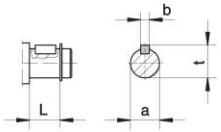
Version with thermal overload relay

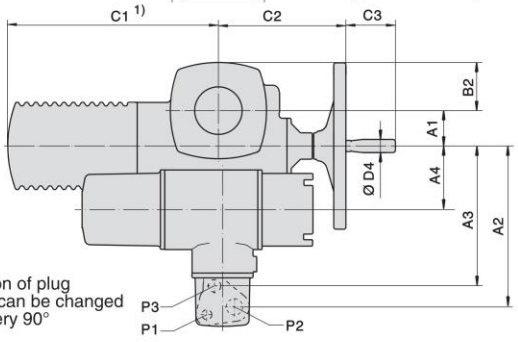




Output drives according to EN ISO 5210, DIN 3210, DIN 3338, dimensions see next page

Handwheel shaft





1) Exact dimensions according to motor used
2) Only if ordered additionally
3) In steps of 100 mm length each
4) Standard, other threads on request

Dimensions	Multi-turn actuator tvoe					
	SM04 / SC 01 SMR 04 / SC 01	SM07/ SC 01 SMR 07 / SC 01	SM12 / SC 01 SMR 12 / SC 01	SM30/ SC 01 SMR30/ SC 01	SM50/ SC 01 SMR50/ SC 01	SM100 / SC 01 SMR100/ SC 01
EN ISO 5210/DIN 3210	**F07 (F10/G0)**	**F07 (F10/G0)**	F10(G0)	F14(G1/2)	F14(G1/2)	**F16(G3)**
A1	40	40	50	67	67	80
A2	287	287	287	303	303	303
A3	247	247	247	263	263	263
A4	103	103	103	119	119	123.5
A5		—		8	8	15
A6	—	—	—	16	16	20
B1	238	238	248	286	286	303
B2	62	62	65	91	91	117
C1	265	265	283	389	389	430
C2	186	186	191	242	245	271
C3	63	63	63	94	94	94
0D	101	101	121	153	153	190
0D1	160	160	200	315	400	500
0D2	G 1⅝"	G *VA "*	G2"	G2O	G214 "	G3"
0D3	42 x 3.3	42 x 3.3	60 x 3.7	76 x 3.7	76 x 3.7	89x4.1
0D4	20	20	20	25	25	25
E	150	150	150	150	150	150
F	115	115	115	115	115	115
G	115	115	115	115	115	115
H1	78	78	80	90	90	110
H2	220	220	220	220	220	220
H3	225	225	225	241	241	245
H4	160	160	170	196	196	235
J	150	150	150	150	150	150
K	75	75	75	75	75	75
L	20	20	24	38,8	45,8	45,8
M	265	265	265	265	265	265
M1	349	349	349	349	349	349
N	173	173	173	173	173	173
P1 4)	M20x 1.5	M20 x 1.5	M20 x 1.5	M20x 1.5	M20x 1.5	M20 x 1.5
P2 4)	M32x1.5	M32 x 1.5	M32x1.5	M32x1.5	M32 x 1.5	M32x1.5
P3 4)	M25x1.5	M25x 1.5	M25x 1.5	M25x1.5	M25 x 1.5	M25x 1.5
BB min.	70	70	70	70	70	70
BB 1 min.	90	90	90	90	90	90
HH min.	30	30	30	30	30	30
a	20 d7	20 d7	20 d7	30 d7	30 d7	30 d7
b	6	6	6	8	8	8
0d1	90 (125)	901125)	125	175	175	210
0d2	55 (70/60)	55 (70/60)	70 (60)	100	100	130
0d3	70X102)	701102)	102	140	140	165
d4	4 x M8 (4 xM10)	4xM8(4xM10)	4xM10	4xM16	4xM16	4xM20
h	3	3	3	4	4	5
t	22.5	22.5	22.5	33	33	33

SCHWARZ®

SMQR05 – SMQR 300

Technical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 – 25%, 380 V/50 Hz

Part-turn actuator					Motor				
Type	Valve attachment EN ISO5211	Cylindrical max.mm	Operating time for 90° [in seconds]	Max. torque [Nm]	Nominal power[1] P_N [kW]	Nominal current[2] I_N [A]	Max. current[3] I_{max} [A]	Starting current I_A [A]	cos ϕ
SMQR05	F07	20	22	50	0.02	0.3	0.45	1.1	0.11
SMQR08	F07	20	22	80	0.02	0.3	0.45	1.1	0.11
SMQR10	F07	20	22	100	0.02	0.3	0.45	1.1	0.11
SMQR15	F10/F07	22	25	150	0.04	0.31	0.58	1.5	0.2
SMQR20	F10/F07	22	25	200	0.04	0.31	0.58	1.5	0.2
SMQR30	F12/F10	35	31	300	0.09	0.35	0.71	1.62	0.4
SMQR50	F12/F10	35	31	500	0.09	0.59	0.78	1.63	0.23
SMQR60	F12/F10	35	31	600	0.12	0.6	0.85	1.65	0.31
SMQR80	F14/F12	45	37	800	0.18	0.85	1.45	2.93	0.32
SMQR120	F14	45	37	1200	0.18	0.87	1.55	2.98	0.31
SMQR150	F14	45	93	1500	0.18	0.85	1.45	2.93	0.32
SMQR200	F14	45	112	2000	0.18	0.85	1.45	2.93	0.32
SMQR300	F14	45	112	3000	0.18	0.87	1.55	2.98	0.31

Notes on table

1) Nominal power P_N — Mechanical power output at motor shaft at running torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque).
Consumed electrical power can be calculated using the following formula:

$P = U \times I \times \cos \phi \times \sqrt{3}$

2) Nominal current I_N — Current at running torque.

3) Max. current I_{max} — Current at maximum torque

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

附表 6　角行程 SM+GW 组合

Technical data Part-turn gearboxes and primary reduction gearings, version with worm wheel made of spheroidal castiron	GW 60 – GW(S)600 GW(S)1080 – GW(S)3900 Spheroidal castiron

Application

Manual operation and motor operation of valves (e.g. butterfly valves and ball valves).
For special applications, please consult SCHWARZ

Worm gearboxes GW60 – GW 600 with primary reduction gearings GWS

Valve			Gearboxes						
Max. permissible valve torque[1]	Valve attachment		Gearbox/ prim. red. gearing	Reduction ratio	Turns for 90°	Factor	Input Shaft[2]	Max. input Torques[3]	Weight[4]
	Flange acc. to EN ISO	Max. shaft diameter							GW/GWS
in Nm up to	5211	in mm					mm	in Nm	kg
600	F10[5] F12	45	GW60	51:1	12.75	15.3	20	70	13
1600	F12[5] F14	60	GW160	53:1	13.25	15.9	20	120	18
			GWS160	106:1	26.5	31.8			18
2700	F14[5] F16	80	GW270	60:1	15	18	20	120	47
			GWS270	120:1	30	36			65
				144:1	36	43.2			65
				168:1	42	50.4			65
				180:1	45	54			65
				240:1	60	72			65
				300:1	75	90			65
6000	F16[5] F25	90	GW600	60:1	15	18	20/30	300	66
			GWS600	90:1	22.5	27			84
				102:1	25.5	30.6			84
				120:1	30	36			84
				156:1	39	46.8			84
				180:1	45	54			84
				204:1	51	61.2			84
				240:1	60	72			84
				300:1	75	90			84

Gearboxes/ prim. red gearing	Possible combinations with multi-turn actuators Operating times for 50 Hz[6] in seconds for 90° at actuator speed in rpm												Multi-turn actuator Actuator for max. input torque	Flange[2] for mounting of multi-turn actuator		Max. Weight[7]
	9	11	18	22	35	45	70	90	105	135	140	180		EN ISO 5210	DIN 3210	GW/GWS+SM+SC max. kg
GW60	–	70	–	35	–	17	–	–	–	–	–	–	SM04	F07	–	38
	–	70	–	35	–	17	–	–	–	–	–	–	SM07	F10	G0	41
GW160	89	73	45	37	23	18	–	–	–	–	–	–	SM07	F10	G0	46
GWS160	177	145	89	73	45	36	23	18	–	–	–	–	SM12			50
GW270	100	82	49	41	26	20	–	–	–	–	–	–	SM07 SM12	F10	G0	79
GWS270	200	164	98	82	52	40	26	20	–	–	–	–				
	240	197	118	99	63	48	31	24	21	16	–	–				94
	280	230	138	115	73	56	36	28	24	19	–	–				99
	300	246	147	123	78	60	39	30	26	20	19	15[8]				
	400	328	196	164	104	80	52	40	35	27	26	20[8]				
	500	410	245	205	130	100	65	50	43	34	33	25[8]				
GW600	100	82	49	41	26	20	–	–	–	–	–	–	SM07 SM12 SM30	F10 F14	G0 G1/2	122
GWS600	150	123	75	62	39	30	20	15	–	–	–	–				
	170	140	84	70	45	34	22	17	–	–	–	–				
	200	164	98	82	52	40	26	20	–	–	–	–				212
	260	214	128	107	68	52	34	26	23	18	–	–				217
	300	246	147	123	78	60	39	30	26	20	19	15[8]				140
	342	281	168	141	89	69	44	34	30	23	22	17[8]				
	400	328	196	164	104	80	52	40	35	27	26	20[8]				
	500	410	245	205	130	100	65	50	43	34	33	25[8]				

1) For ball valve applications, sizing up to 80 % of the maximum permissible valve torque
2) Depending on the required input torque
3) In new condition approx. 15 % higher input torque required
4) With coupling (without bore) and grease filling in the gear housing
5) Observe the maximum torques of the mounting flanges in accordance with EN ISO 5211
6) Standard values at 50 Hz; at 60 Hz, the indicated operating time is reduced by 17 %.
7) With coupling (without bore) and grease filling in the gear housing, multi-turn actuator SCHWARZ with 3-phase AC motor, standard electrical connection, output drive type B3 and handwheel
8) Observe max. output torque of the multi-turn actuator

Technical data Part-turn gearboxes and primary reduction gearings, version with worm wheel made of spheroidal castiron	GW 60 – GW(S)600 GW(S)1080 – GW(S)3900 Spheroidal castiron

Application

Manual operation and motor operation of valves (e.g. butterfly valves and ball valves).
For special applications, please consult SCHWARZ

Worm gearboxes GW60 – GW 600 with primary reduction gearings GWS

Valve			Gearboxes						
Max. permissible valve torque[1]	Valve attachment		Gearbox/ prim. red. gearing	Reduction ratio	Turns for 90°	Factor	Input Shaft[2]	Max. input Torques[3]	Weight[4]
	Flange acc. to EN ISO 5211	Max. shaft diameter in mm					mm	in Nm	GW/GWS kg
10800	F25[5] F30	**100**	**GW1080**	**60:1**	**15**	**18**	**20/30**	**500**	**121**
			GWS1080	**90:1**	**22.5**	**27**			**151**
				102:1	**25.5**	**30.6**			**151**
				120:1	**30**	**36**			**151**
				156:1	**39**	**46.8**			**151**
				180:1	**45**	**54**			**151**
				204:1	**51**	**61.2**			**151**
				240:1	**60**	**72**			**151**
				300:1	**75**	**90**			**151**
				360:1	**90**	**108**			**151**
				420:1	**105**	**126**			**151**
19500	F30[5] F35	**125**	**GW1950**	**55:1**	**13.75**	**17.6**	**20/30/40**	**1000**	**197**
			GWS1950	**83:1**	**20.75**	**26.56**			**255**
				110:1	**27.5**	**35.2**			**255**
				132:1	**33**	**42.24**			**255**
				165:1	**41.25**	**52.8**			**255**
				187:1	**46.75**	**59.84**			**255**
				220:1	**55**	**70.4**			**255**
				275:1	**68.75**	**88**			**255**
				330:1	**82.5**	**105.6**			**255**
				385:1	**96.25**	**123.2**			**255**
				440:1	**110**	**140.8**			**255**
				480:1	**120**	**153.6**			**255**
				550:1	**137.5**	**176**			**255**
				638:1	**159.5**	**204.16**			**255**
				688:1	**172**	**220.16**			**255**
				748:1	**187**	**239.36**			**255**
				811:1	**202.75**	**259.52**			**255**
				880:1	**220**	**281.6**			**255**
39000	F35[5] F40	**160**	**GW3900**	**55:1**	**13.75**	**17.6**	**20/30/40**	**1000**	**288**
			GWS3900	**83:1**	**20.75**	**26.56**			**368**
				110:1	**27.5**	**35.2**			**368**
				132:1	**33**	**42.24**			**368**
				165:1	**41.25**	**52.8**			**368**
				187:1	**46.75**	**59.84**			**368**
				220:1	**55**	**70.4**			**368**
				275:1	**68.75**	**88**			**368**
				330:1	**82.5**	**105.6**			**368**
				385:1	**96.25**	**123.2**			**368**
				440:1	**110**	**140.8**			**368**
				480:1	**120**	**153.6**			**368**
				550:1	**137.5**	**176**			**368**
				638:1	**159.5**	**204.16**			**368**
				688:1	**172**	**220.16**			**368**
				748:1	**187**	**239.36**			**368**
				811:1	**202.75**	**259.52**			**368**
				880:1	**220**	**281.6**			**368**

1) For ball valve applications, sizing up to 80 % of the maximum permissible valve torque
2) Depending on the required input torque
3) In new condition approx. 15 % higher input torque required
4) With coupling (without bore) and grease filling in the gear housing
5) Observe the maximum torques of the mounting flanges in accordance with EN ISO 5211

Technical data Part-turn gearboxes and primary reduction gearings, version with worm wheel made of spheroidal castiron														GW 60 – GW(S)600 GW(S)1080 – GW(S)3900 Spheroidal castiron		
Gearboxes/ prim. red gearing	Possible combinations with multi-turn actuators Operating times for 50 Hz[6] in seconds for 90° at actuator speed in rpm												Multi-turn actuator Actuator for max. input torque	Flange[2] for mounting of multi-turn actuator		Max. Weight[7]
	9	11	18	22	35	45	70	90	105	135	140	180		EN ISO 5210	DIN 3210	GW/GWS+SM+SC max. kg
GW1080	100	82	49	41	26	20	–	–	–	–	–	–	SM07 SM12	F10	G0	153
GWS1080	150	123	75	62	39	30	20	15	–	–	–	–				
	170	140	84	70	45	34	22	17	–	–	–	–				
	200	164	98	82	52	40	26	20	–	–	–	–				
	260	214	128	107	68	52	34	26	23	18	–	–				179
	300	246	147	123	78	60	39	30	26	20	19	–				183
	342	281	168	141	89	69	44	34	30	23	22	17[8]				
	400	328	196	164	104	80	52	40	35	27	26	20[8]				
	500	410	245	205	130	100	65	50	43	34	33	25[8]				
	600	491	300	246	155	120	78	60	52	40	39	30[8]				
	–	573	350	286	180	140	90	70	60	47	45	35[8]				
GW1950	92	75	46	38	24	19	–	–	–	–	–	–	SM07 SM12 SM30 SM50	F10 F14	G0 G1/2	258
GWS1950	139	114	70	57	36	28	18	–	–	–	–	–				
	184	150	92	75	48	37	24	19	–	–	–	–				
	220	180	110	90	57	44	29	22	19	–	–	–				
	275	225	138	113	71	55	36	28	24	19	–	–				
	312	255	156	128	81	63	41	32	27	21	20	–				
	367	300	184	150	95	74	48	37	32	25	24	19[8]				
	459	375	230	188	118	92	59	46	40	31	30	23[8]				283
	550	450	275	225	142	110	71	55	48	37	36	28[8]				288
	642	525	321	263	165	129	83	65	55	43	42	33[8]				311
	–	600	367	300	189	147	95	74	63	49	48	37[8]				316
	–	–	400	328	206	160	103	80	69	54	53	40[8]				
	–	–	459	375	236	184	118	92	79	62	59	46[8]				
	–	–	532	435	274	213	137	107	92	71	69	54[8]				
	–	–	574	470	295	230	148	115	99	77	74	58[8]				
	–	–	624	510	321	249	161	125	107	84	81	63[8]				
	–	–	–	553	348	271	174	136	116	91	87	68[8]				
	–	–	–	600	378	294	189	147	126	98	95	74[8]				
GW3900	92	75	46	38	24	19	–	–	–	–	–	–	SM07 SM12 SM30 SM50 SM100	F10 F14 F16	G0 G1/2 G3	376
GWS3900	139	114	70	57	36	28	18	–	–	–	–	–				
	184	150	92	75	48	37	24	19	–	–	–	–				
	220	180	110	90	57	44	29	22	19	–	–	–				
	275	225	138	113	71	55	36	28	24	19	–	–				
	312	255	156	128	81	63	41	32	27	21	20	–				
	367	300	184	150	95	74	48	37	32	25	24	19[8]				396
	459	375	230	188	118	92	59	46	40	31	30	23[8]				400
	550	450	275	225	142	110	71	55	48	37	36	28[8]				412
	642	525	321	263	165	129	83	65	55	43	42	33[8]				417
	–	600	367	300	189	147	95	74	63	49	48	37[8]				434
	–	–	400	328	206	160	103	80	69	54	53	40[8]				
	–	–	459	375	236	184	118	92	79	62	59	46[8]				
	–	–	532	435	274	213	137	107	92	71	69	54[8]				
	–	–	574	470	295	230	148	115	99	77	74	58[8]				
	–	–	624	510	321	249	161	125	107	84	81	63[8]				
	–	–	–	553	348	271	174	136	116	91	87	68[8]				
	–	–	–	600	378	294	189	147	126	98	95	74[8]				

1) For ball valve applications, sizing up to 80 % of the maximum permissible valve torque
2) Depending on the required input torque
3) In new condition approx. 15 % higher input torque required
4) With coupling (without bore) and grease filling in the gear housing
5) Observe the maximum torques of the mounting flanges in accordance with EN ISO 5211
6) Standard values at 50 Hz; at 60 Hz, the indicated operating time is reduced by 17 %.
7) With coupling (without bore) and grease filling in the gear housing, multi-turn actuator SCHWARZ with 3-phase AC motor, standard electrical connection, output drive type B3 and handwheel
8) Observe max. output torque of the multi-turn actuator

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document

SML03 – SML30

Electrical data Straight stroke actuators for open-close duty with 3-phase AC motors
Short-time duty S2 - 15 min, 380V/50 Hz

Straight stroke actuator				Motor							
										SCHWARZ power class switchgears	
Type	Output speed [mm/ s]	Max. torque [kN]	Stroke Max. mm	Motor type	Nominal power[1] P_N [kW]	Nominal current[2] I_N [A]	Max. current[3] I_{max} [A]	Starting current I_A [A]	cos ϕ	Contactor	Thyristor
SML03	1.0	3	25	MD03-0.015	0.015	0.04	0.05	0.07	0.57	C1	T1
	1.5			MD03-0.03	0.03	0.08	0.11	0.13	0.57	C1	T1
	2.0			MD03-0.04	0.04	0.09	0.11	0.17	0.68	C1	T1
SML05	1.0	5	40	MD05-0.02	0.02	0.05	0.07	0.08	0.61	C1	T1
	1.5			MD05-0.045	0.045	0.10	0.13	0.18	0.68	C1	T1
	2.0			MD05-0.06	0.06	0.13	0.16	0.24	0.70	C1	T1
SML08	1.0	8	60	MD08-0.04	0.04	0.10	0.12	0.18	0.61	C1	T1
	1.5			MD08-0.06	0.06	0.14	0.19	0.28	0.65	C1	T1
	2.0			MD08-0.10	0.10	0.25	0.31	0.57	0.61	C1	T1
SML10	1.0	10	60	MD10-0.04	0.04	0.11	0.13	0.19	0.55	C1	T1
	1.5			MD10-0.06	0.06	0.16	0.23	0.37	0.57	C1	T1
	2.0			MD10-0.10	0.10	0.27	0.34	0.61	0.56	C1	T1
SML16	1.0	16	60	MD16-0.06	0.06	0.30	0.38	0.79	0.30	C1	T1
	1.5			MD16-0.09	0.09	0.45	0.49	0.88	0.30	C1	T1
	2.0			MD16-0.20	0.20	0.87	1.00	1.38	0.35	C1	T1
SML20	1.0	20	60	MD20-0.09	0.09	0.31	0.39	0.81	0.44	C1	T1
	1.5			MD20-0.12	0.12	0.49	0.53	1.12	0.37	C1	T1
	2.0			MD20-0.20	0.20	0.88	1.01	1.39	0.35	C1	T1
SML25	1.0	25	100	MD25-0.09	0.09	0.33	0.49	0.92	0.41	C1	T1
	1.5			MD25-0.12	0.12	0.52	0.82	1.33	0.35	C1	T1
	2.0			MD25-0.25	0.25	1.14	1.31	1.47	0.33	C1	T1
SML30	1.0	30	100	MD30-0.09	0.09	0.34	0.53	1.04	0.40	C1	T1
	1.5			MD30-0.12	0.12	0.58	0.92	1.33	0.31	C1	T1
	2.0			MD30-0.25	0.25	1.22	1.44	1.54	0.31	C1	T1

SMLR 03 – SMLR 30

Electrical data Straight stroke actuators for Modulating duty with 3-phase AC motors
Intermittent duty S4-25%, 380V/50 Hz

Straight stroke actuator				Motor							
										SCHWARZ power class switchgears	
Type	Output speed [mm/ s]	Max. torque [kN]	Stroke Max. mm	Motor type	Nominal power[1] P_N [kW]	Nominal current[2] I_N [A]	Max. current[3] I_{max} [A]	Starting current I_A [A]	cos ϕ	Contactor	Thyristor
SMLR03	1.0	3	25	MD03-0.015	0.015	0.04	0.05	0.07	0.57	C1	T1
	1.5			MD03-0.03	0.03	0.08	0.11	0.13	0.57	C1	T1
	2.0			MD03-0.04	0.04	0.09	0.11	0.17	0.68	C1	T1
SMLR05	1.0	5	40	MD05-0.02	0.02	0.05	0.07	0.08	0.61	C1	T1
	1.5			MD05-0.045	0.045	0.10	0.13	0.18	0.68	C1	T1
	2.0			MD05-0.06	0.06	0.13	0.16	0.24	0.70	C1	T1
SMLR08	1.0	8	60	MD08-0.04	0.04	0.10	0.12	0.18	0.61	C1	T1
	1.5			MD08-0.06	0.06	0.14	0.19	0.28	0.65	C1	T1
	2.0			MD08-0.10	0.10	0.25	0.31	0.57	0.61	C1	T1
SMLR10	1.0	10	60	MD10-0.04	0.04	0.11	0.13	0.19	0.55	C1	T1
	1.5			MD10-0.06	0.06	0.16	0.23	0.37	0.57	C1	T1
	2.0			MD10-0.10	0.10	0.27	0.34	0.61	0.56	C1	T1
SMLR16	1.0	16	60	MD16-0.06	0.06	0.30	0.38	0.79	0.30	C1	T1
	1.5			MD16-0.09	0.09	0.45	0.49	0.88	0.30	C1	T1
	2.0			MD16-0.20	0.20	0.87	1.00	1.38	0.35	C1	T1
SMLR20	1.0	20	60	MD20-0.09	0.09	0.31	0.39	0.81	0.44	C1	T1
	1.5			MD20-0.12	0.12	0.49	0.53	1.12	0.37	C1	T1
	2.0			MD20-0.20	0.20	0.88	1.01	1.39	0.35	C1	T1
SMLR25	1.0	25	100	MD25-0.09	0.09	0.33	0.49	0.92	0.41	C1	T1
	1.5			MD25-0.12	0.12	0.52	0.82	1.33	0.35	C1	T1
	2.0			MD25-0.25	0.25	1.14	1.31	1.47	0.33	C1	T1
SMLR30	1.0	30	100	MD30-0.09	0.09	0.34	0.53	1.04	0.40	C1	T1
	1.5			MD30-0.12	0.12	0.58	0.92	1.33	0.31	C1	T1
	2.0			MD30-0.25	0.25	1.22	1.44	1.54	0.31	C1	T1

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SML 03 – SML 30

Electrical data Straight stroke actuators for open-close duty with 1-phase AC motors
Short-time duty S2 - 15 min, 220V-240V/50 Hz

Straight stroke actuator				Motor							
										SCHWARZ power class switchgears	
Type	Output speed [mm/ s]	Max. torque [kN]	Stroke Max. mm	Motor type	Nominal power[1] P_N [kW]	Nominal current[2] I_N [A]	Max. current[3] I_{max} [A]	Starting current I_A [A]	cos ϕ	Contactor	Thyristor
SML03	1.0	3	25	MS03-0.015	0.015	0.15	0.20	0.25	0.45	C1	T1
	1.5			MS03-0.03	0.03	0.31	0.41	0.51	0.44	C1	T1
	2.0			MS03-0.04	0.04	0.37	0.45	0.71	0.49	C1	T1
SML05	1.0	5	40	MS05-0.02	0.02	0.19	0.25	0.31	0.48	C1	T1
	1.5			MS05-0.045	0.045	0.42	0.55	0.69	0.49	C1	T1
	2.0			MS05-0.06	0.06	0.56	0.69	2.33	0.49	C1	T1
SML08	1.0	8	60	MS08-0.04	0.04	0.44	0.57	0.72	0.41	C1	T1
	1.5			MS08-0.06	0.06	0.62	0.83	2.83	0.44	C1	T1
	2.0			MS08-0.10	0.10	1.11	1.13	1.57	0.41	C1	T1
SML10	1.0	10	60	MS10-0.04	0.04	0.45	0.59	0.73	0.4	C1	T1
	1.5			MS10-0.06	0.06	0.68	0.83	2.83	0.4	C1	T1
	2.0			MS10-0.10	0.10	1.13	1.14	1.59	0.4	C1	T1
SML16	1.0	16	60	MS16-0.06	0.06	0.56	0.71	2.41	0.49	C1	T1
	1.5			MS16-0.09	0.09	0.85	0.93	1.22	0.48	C1	T1
	2.0			MS16-0.20	0.20	1.91	2.19	13.8	0.48	C1	T1
SML20	1.0	20	60	MS20-0.09	0.09	0.58	0.71	2.42	0.71	C1	T1
	1.5			MS20-0.12	0.12	0.87	0.93	1.22	0.63	C1	T1
	2.0			MS20-0.20	0.20	1.93	2.21	14	0.47	C1	T1
SML25	1.0	25	100	MS25-0.09	0.09	0.75	0.99	1.22	0.55	C1	T1
	1.5			MS25-0.12	0.12	1.22	1.92	5.33	0.45	C1	T1
	2.0			MS25-0.25	0.25	2.67	4.31	14	0.43	C1	T1
SML30	1.0	30	100	MS30-0.09	0.09	0.77	1.03	1.24	0.53	C1	T1
	1.5			MS30-0.12	0.12	1.28	1.92	5.33	0.43	C1	T1
	2.0			MS30-0.25	0.25	2.69	4.34	14.4	0.42	C1	T1

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SMLR 03 – SMLR 30

Electrical data Straight stroke actuators for Modulating duty with 1-phase AC motors
Intermittent S4 – 25%, 220V-240V/50 Hz

Straight stroke actuator				Motor							
										SCHWARZ power class switchgears	
Type	Output speed [mm/ s]	Max. torque [kN]	Stroke Max. mm	Motor type	Nominal power[1] P_N [kW]	Nominal current[2] I_N [A]	Max. current[3] I_{max} [A]	Starting current I_A [A]	cos ϕ	Contactor	Thyristor
SMLR03	1.0	3	25	MS03-0.015	0.015	0.15	0.20	0.25	0.45	C1	T1
	1.5			MS03-0.03	0.03	0.31	0.41	0.51	0.44	C1	T1
	2.0			MS03-0.04	0.04	0.37	0.45	0.71	0.49	C1	T1
SMLR05	1.0	5	40	MS05-0.02	0.02	0.19	0.25	0.31	0.48	C1	T1
	1.5			MS05-0.045	0.045	0.42	0.55	0.69	0.49	C1	T1
	2.0			MS05-0.06	0.06	0.56	0.69	2.33	0.49	C1	T1
SMLR08	1.0	8	60	MS08-0.04	0.04	0.44	0.57	0.72	0.41	C1	T1
	1.5			MS08-0.06	0.06	0.62	0.83	2.83	0.44	C1	T1
	2.0			MS08-0.10	0.10	1.11	1.13	1.57	0.41	C1	T1
SMLR10	1.0	10	60	MS10-0.04	0.04	0.45	0.59	0.73	0.4	C1	T1
	1.5			MS10-0.06	0.06	0.68	0.83	2.83	0.4	C1	T1
	2.0			MS10-0.10	0.10	1.13	1.14	1.59	0.4	C1	T1
SMLR16	1.0	16	60	MS16-0.06	0.06	0.56	0.71	2.41	0.49	C1	T1
	1.5			MS16-0.09	0.09	0.85	0.93	1.22	0.48	C1	T1
	2.0			MS16-0.20	0.20	1.91	2.19	13.8	0.48	C1	T1
SMLR20	1.0	20	60	MS20-0.09	0.09	0.58	0.71	2.42	0.71	C1	T1
	1.5			MS20-0.12	0.12	0.87	0.93	1.22	0.63	C1	T1
	2.0			MS20-0.20	0.20	1.93	2.21	14	0.47	C1	T1
SMLR25	1.0	25	100	MS25-0.09	0.09	0.75	0.99	1.22	0.55	C1	T1
	1.5			MS25-0.12	0.12	1.22	1.92	5.33	0.45	C1	T1
	2.0			MS25-0.25	0.25	2.67	4.31	14	0.43	C1	T1
SMLR30	1.0	30	100	MS30-0.09	0.09	0.77	1.03	1.24	0.53	C1	T1
	1.5			MS30-0.12	0.12	1.28	1.92	5.33	0.43	C1	T1
	2.0			MS30-0.25	0.25	2.69	4.34	14.4	0.42	C1	T1

Notes on table

1) Nominal power P_N — Mechanical power output at motor shaft at running torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque).
Consumed electrical power can be calculated using the following formula:
$P = U \times I \times \cos \phi \times \sqrt{3}$

2) Nominal current I_N — Current at running torque.

3) Max. current I_{max} — Current at maximum torque

Notes on installation and sizing

Motor data — Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.

Thermoswitches/PTC thermistors — To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings.

Actuators without integral controls:

Thermoswitches or PTC thermistors have to be considered within external controls (refer to terminal plan).

Note: Failure to connect thermoswitches or PTC thermistors shall void our warranty for the motor.

Rating of thermoswitches

AC current		DC current	
250 V, 50 – 60 Hz		60 V	1.0 A
cos ϕ = 1	2.5 A	42 V	1.2 A
cos ϕ = 0.6	1.6 A	24 V	1.5 A

Actuators with SC integral controls:

Thermal motor protection is already integrated.

Mains voltage, mains frequency — Permissible variation of mains voltage: ±10 %
Permissible variation of mains frequency: ±5%

Switchgear sizing — For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used.

Actuators without integral controls:

Switchgears are supplied by the customer. We recommend specification of switchgears suitable for their rated operating power/motor power in compliance with the assigned SCHWARZ power class.

Switchgear assignment to SCHWARZ power classes:

SHCWARZ power class	Reversing contactor Rated power according to EN 60947-4-1:2010 AC-3	Reversing contactor motor power according to UL/CSMRL at	
	380 V AC	480 V AC	600 V AC
C1	4.0 kW	5.0 hp	5.0 hp
C2	7.5 kW	10 hp	10 hp
C3	15 kW	20 hp	25 hp
C4	30 kW	60 hp	60 hp
C5	55 kW	75 hp	100 hp

Actuators with SC integral controls:

Required switchgears are already integrated.

Technical data SCHWARZ linear thrust unit for OPEN-CLOSE duty	**LT 12 – LT 230 with SM 04 – SM 100**

SCHWARZ linear thrust units LT 12 – LT 230 attached to multi-turn actuators SM 04 – SM 100 are used for valves requiring linear travel. The thrust units convert the output torque of the multi-turn actuator into an axial thrust.

Suitable multi-turn actuator		*Thrust* [1]	*Linear thrust unit*	*Speed*	*Valve mounting flange*	*Stem thread*	*Factor* [2]	*Stroke*	*Thrust at stall torque*	*Weight* [3]
Type	1/min	F max. kN	Type	mm/min	DIN 3358		f	max. mm	F max. kN	ca. kg
SM 04	11	12	LT12	55	F10	26 x 5 LH	2.8	50	24	8
	22			110				100		9
	45			225				200		10
	90			450				400		13
SM 07	11	25	LT25	55	F10	26 x 5 LH	2.8	50	46	8
	22			110				100		9
	45			225				200		10
	90			450				400		13
SM 12	9	40	LT40	54	F10	32 x 6 LH	3.0	63	64	10
	18			108				125		12
	35			210				250		15
	70			420				400		18
SM 30	9	70	LT70	63	F14	40 x 7 LH	4.0	80	100	23
	18			126				160		26
	35			245				320		32
	70			490				400		35
SM 50	9	140	LT140	63	F14	40 x 7 LH	4.0	80	197	23
	18			126				160		26
	35			245				320		32
	70			490				400		35
SM 100	9	230	LT230	72	F16	48 x 8 LH	4.4	100	318	45
	18			144				200		50
	35			280				400		62
	70			560				500		68

Weight of base	LT12	LT25	LT40	LT70	LT140	LT230
	11			40		

Technical data for multi-turn actuators refer to sheet «Technical/Electrical Data SM 04 – SM 100», latest issue.

1）at min. / max. setting of torque switching at actuator, tolerance 20 %
2）Conversion factor f for torque (T in Nm) to thrust (F in kN) at average coefficient of friction 0,15 (T = F x f)
3）without multi-turn actuator and base

We reserve the right to alter data according to improvements made. Previous data sheets become invalid with the issue of this data sheet.

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Issue 1.1

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SM-SC+GWS 组合系列

SM-SC+GWF 组合系列

SM-SC+LT 组合系列

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SM-SC+GB 系列

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