

Neles™ pneumatic linear cylinder actuator

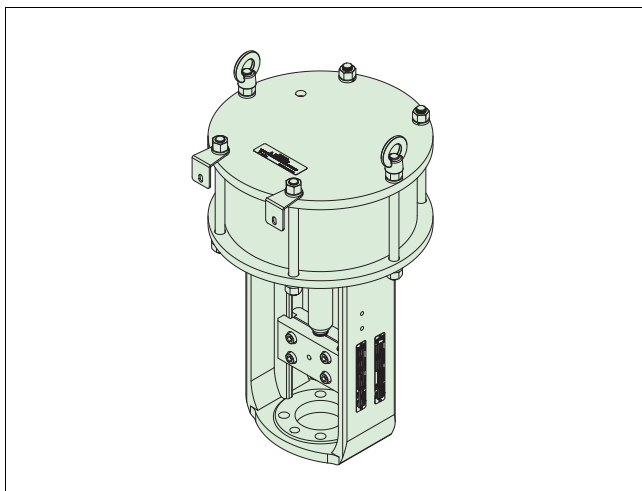
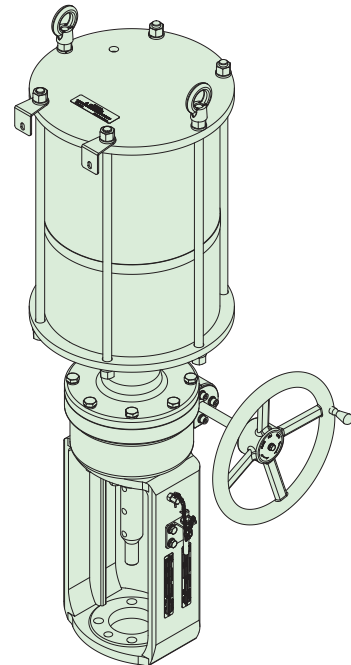
Series VC

Neles series VC actuators are exclusively developed for linear valves. The VC double acting cylinder type actuators are designed for use in both modulating control and on-off service. They provide heavy duty and reliable operation and are well suited for many different kind of applications. The high performance internal coating resists wear and corrosion and the replaceable inner parts guarantee a long life cycle.

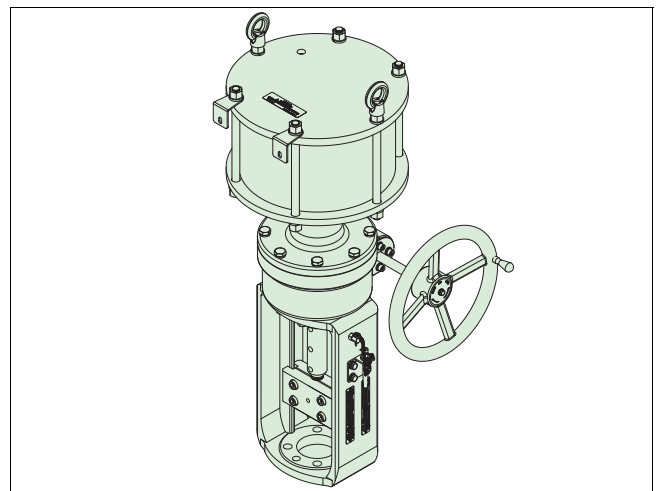
When "stay put" failure mode is required, a double acting actuator with lock up valve is the correct choice. If another failure mode is required, a double acting actuator with transfer valve and a volume tank should be selected. The series VC pneumatic cylinder actuators offers a built-in volume chamber or independent volume tank to provide failure in either the open or closed position. The built-in volume chamber provides minimum one time stroking when the instrument air fails.

Construction

- Heavy duty actuator designed for linear modulating control and on/off applications.
- Heavy duty piston rod and cylinder are guided by anti-corrosive cylinder with self lubricating piston seal which ensures efficient operation and improves the transfer of energy to the valve stem.
- The actuators incorporate three stages of internal and external corrosion resistance coating against severe weather, chemical and petroleum environments.
- Optional handwheel for manual operation.
- Optional volume tank or built-in volume chamber.



Sizes #30, #40, #50, #60, #70, #80
VC Cylinder actuators without handwheel



Sizes #30, #40, #50, #60, #70, #80
VC Cylinder actuators with handwheel

Simple and cost effective

A specially designed piston and cylinder in the main actuator drive module ensures simple and accurate alignment of modules when assembling the actuator or performing maintenance.

Accessories and control devices

A variety of accessories are available including positioners and limit switches, solenoid valves, transducers, relays, boosters and volume tanks and built-in volume chambers etc.

VC Cylinder actuators design details

VC Specifications

Actuator size	Effect area		Volume		Actuator stem size (Φ)		Maximum stroke		Thrust at pressure				Max. allowable pressure							
	cm ²	inch ²	dm ³	inch ³	mm	inch	mm	inch	Pressure		Thrust		bar	psi						
									bar	psi	N	lbf								
#30	687	106	8.2	500.3	40.0	1.58	120	4.72	4.0	58	26930	6148	10.0	145						
									6.0	86	40396	9116								
									8.5	121	57227	12826								
#40	1151	178	20.7	1262.0	55.0	2.17	180	7.09	4.0	58	45119	10324			10.0	145				
									6.0	86	67679	15308								
									8.5	121	95878	21538								
#50	1816	282	32.6	1999.4	55.0	2.17	180	7.09	4.0	58	71187	16356					10.0	145		
									6.0	86	106781	24252								
									8.5	121	151273	34122								
#60	2650	411	63.6	3883.9	55.0	2.17	240	9.45	4.0	58	103880	23838							10.0	145
									6.0	86	155820	35346								
									8.5	121	220745	49731								
#70	3116	483	74.8	4564.4	65.0	2.56	240	9.45	4.0	58	122147	28014	10.0	145						
									6.0	86	183220	41538								
									8.5	121	259563	58443								
#80	4229	656	118.4	7229.1	65.0	2.56	280	11.02	4.0	58	165777	38048			10.0	145				
									6.0	86	248665	56416								
									8.5	121	352276	79376								

- *. Note:
 1. Maximum stroke: Available to extend according to the required specifications.
 2. The volume is based on above maximum stroke.
 3. The thrust values are not included other considerable factors.

VC Stroking times

Size	Stroke (mm)	ND model	Stroking time (Sec.)			
			Case-1		Case-2	
			Load	Vent	Load	Vent
# 30	60	ND 9206	6	7	8	9
	80	ND 9206	8	8	10	10
	100	ND 9206	10	10	12	12
# 40	80	ND 9206	8	10	11	12
	100	ND 9206	10	11	12	13
	120	ND 9206	11	12	14	15
# 50	100	ND 9206	13	13	16	16
	120	ND 9206	15	14	18	18
	140	ND 9206	17	16	20	19
# 60	120	ND 9206	18	16	22	22
	140	ND 9206	21	19	26	24
	180	ND 9206	25	21	30	28
# 70	140	ND 9206	20	19	29	24
	180	ND 9206	24	22	34	28
	240	ND 9206	28	27	40	36
# 80	180	ND 9206	31	30	42	38
	240	ND 9206	35	31	48	42
	280	ND 9206	39	34	54	46

- Note:
 1. Mounted with ND 9200 smart positioners and air set only
 2. Case-1: when applied B72G-2AS-980 air set
 Case-2: when applied YT-200BN210 air set
 3. Air supply pressure: 6.0 barg
 4. Stroking time accuracy: ± 10%

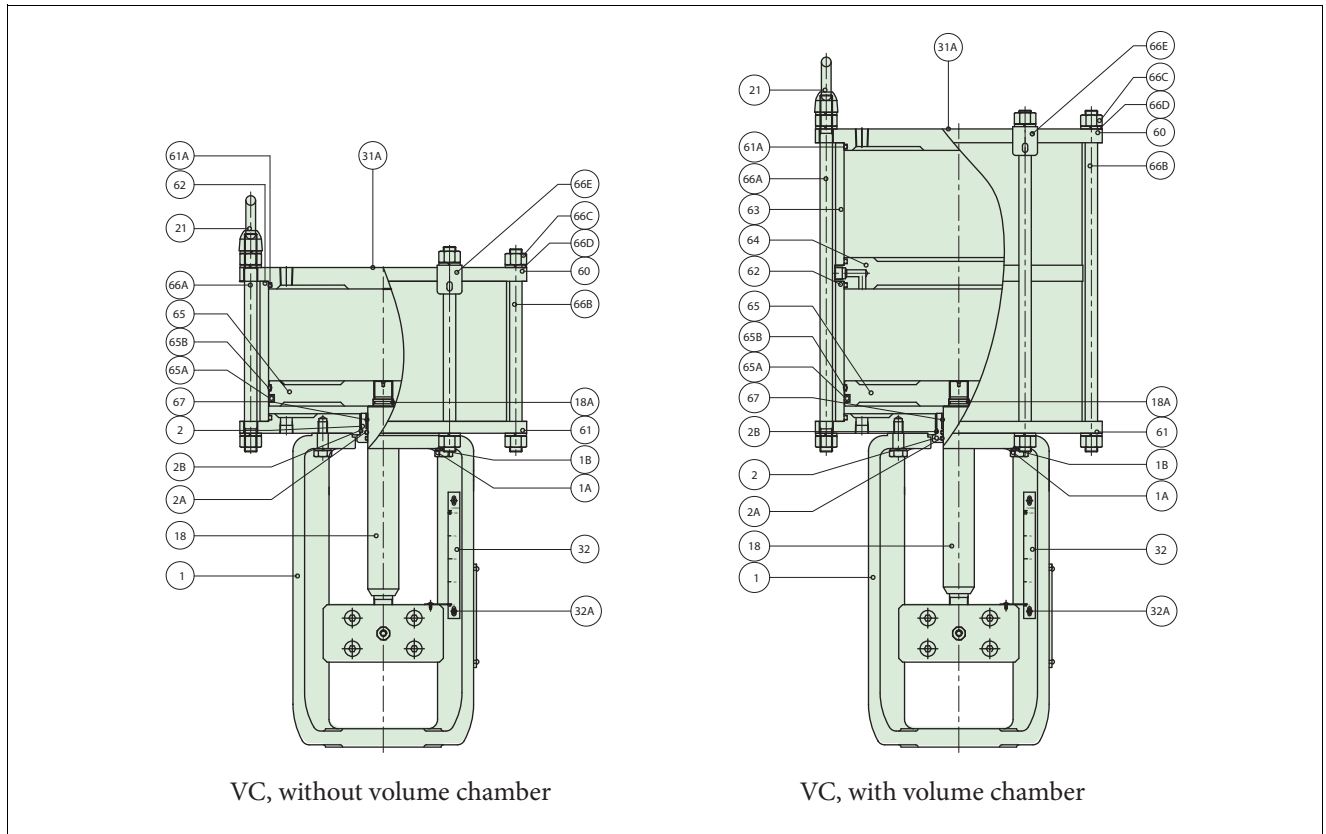
VC Temperature ranges

Description	Standard VC	Low. Temp. VC
Temp. range	-20 °C to +85 °C	-30 °C to +70 °C
Type code ref. (sign 6-9)	BVAK	BVLK

VC Air supply connections

Standard	3/8" NPT for VC #30
	1/2" NPT for VC #40, #50, #60, #70 & #80
Optional	3/4" and others

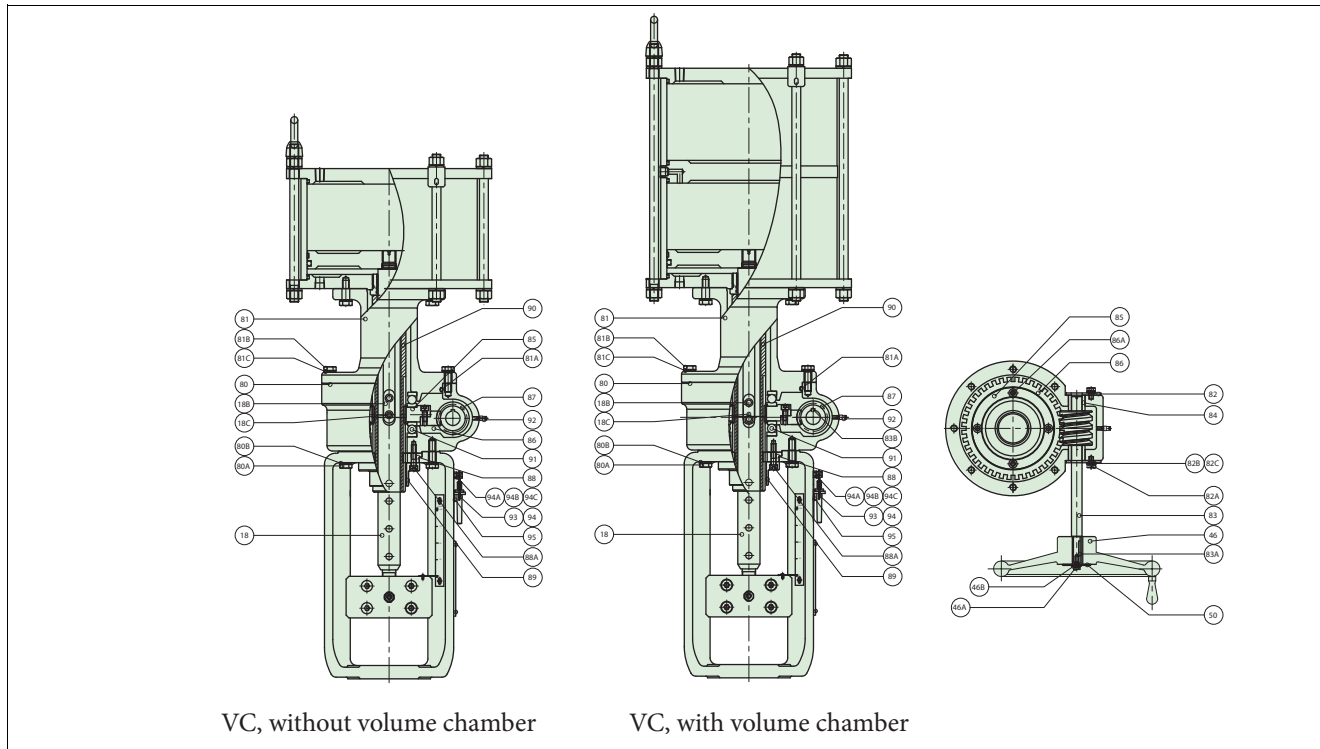
VC, actuator constructions without handwheel



VC, Standard parts & materials without handwheel

Part no.	Description	Material	Spare part
1	YOKE	ASTM A216 Gr. WCB	
1A	HEXAGON SCREW	ISO 3506 A2-70	
1B	SPRING WASHER	AISI 304	
2	STEM GUIDE	BRASS	
2A	O-RING	NITRILE, NBR	Cat 1
2B	O-RING	NITRILE, NBR	Cat 1
18	TOP STEM	ASTM A564 Gr. 630+HCr	
18A	O-RING	NITRILE, NBR	Cat 1
21	LIFTING EYE NUT	JIS G3101-SS400	
30	IDENTIFICATION PLATE	AISI 304	
30A	RIVET	AISI 304	
31A	STICKER		
32	INDICATOR	AISI 304	
32A	ROUND HEAD SCREW	AISI 304	
60	TOP COVER	JIS G3101-SS400+Zn	
61	BOTTOM COVER	JIS G3101-SS400+Zn	
61A	O-RING	NITRILE, NBR	Cat 1
62	PISTON CYLINDER	JIS G3101-SS400+HCr	Cat 3
63	CHAMBER CYLINDER	JIS G3101-SS400+HCr	Cat 3
64	MIDDLE PLATE	JIS G3101-SS400+Zn	
65	PISTON	ASTM B209 ALLOY 6061	Cat 3
65A	O-RING	NITRILE, NBR	Cat 1
65B	WEAR RING	CARBON GRAPHITE	Cat 1
66A	TIE ROD	JIS G3101-SS400	
66B	TIE ROD	JIS G3101-SS400	
66C	HEXAGON NUT	ISO 3506 A2-70	
66D	SPRING WASHER	ISO 3506 A2-70	
66E	BRACKET	AISI 304	
67	DU DRY BEARING	AISI 304+PTFE+Pb	

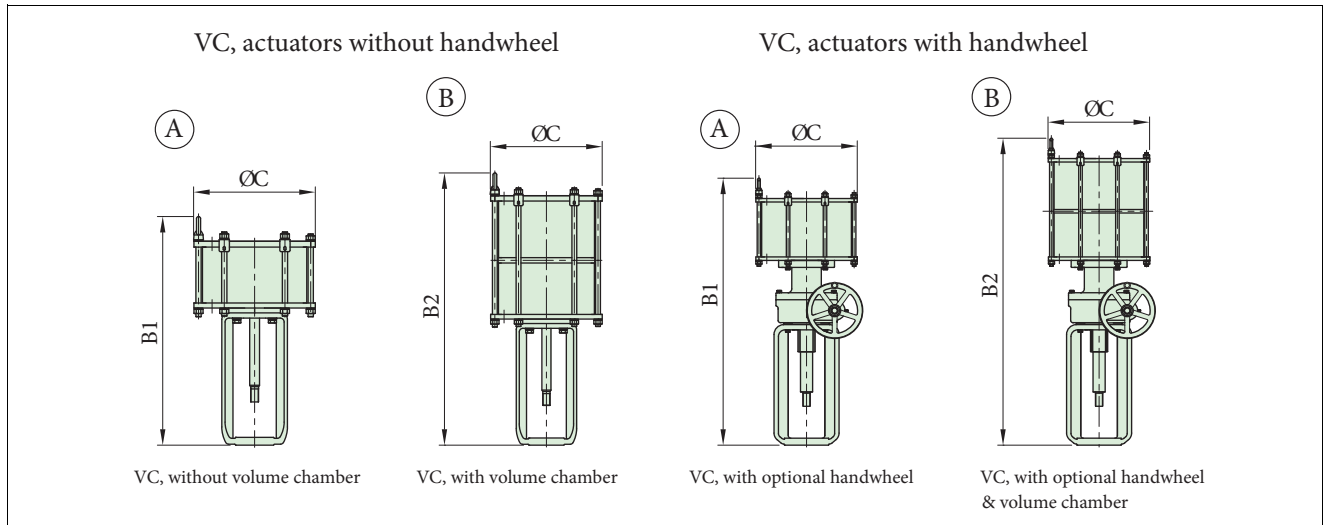
VC, actuator constructions with handwheel



VC, Standard parts & materials with handwheel

Part no.	Description	Material	Spare part
18B	KEY	AISI 304+HCr	
18C	SOCKET HEAD SCREW	ISO 3506 A2-70	
46	HANDLE	G5501-FC20+HCr	
46A	HEXAGON SCREW	ISO 3506 A2-70	
46B	WASHER	AISI 304	
50	HANDLE INDICATOR	ALUMINUM	
80	GEAR BOX CASE	ASTM A216 Gr.WCB	
80A	HEXAGON SCREW	ISO 3506 A2-70	
80B	SPRING WASHER	AISI 304	
81	GEARBOX COVER	ASTM A216 Gr.WCB	
81A	O-RING	NITRILE, NBR	Cat 1
81B	HEXAGON SCREW	ISO 3506 A2-70	
81C	SPRING WASHER	AISI 304	
82	GEAR BOX SIDE COVER	AISI 304	
82A	SOCKET HEAD SCREW	ISO 3506 A2-70/80	
82B	SPRING WASHER	AISI 304	
82C	WASHER	AISI 304	
83	HANDLE SHAFT	AISI 304	
83A	KEY	JIS G4051-S45C	
83B	KEY	JIS G4051-S45C	
84	SHAFT BUSHING	BRASS	
85	GEAR CHUCK	JIS G4051-S45C	
86	WORM WHEEL	JIS G4051-S45C	
86A	SOCKET HEAD SCREW	ISO 3506 A2-70/80	
87	WORM	JIS G4051-S45C	
88	LIMITER	JIS G3101-SS400	
88A	SOCKET HEAD SCREW	ISO 3506 A2-70	
89	PIPE COVER	AISI 304	
90	GEAR PIPE	AISI 316L	
91	BEARING	JIS G3101-SS400	
92	NIPPLE	BRASS	
93	TAPER PIN	ASTM A564 Gr.630+HCr	
94	TAPER CHAIN	STAINLESS STEEL	
94A	TAPER PIN SCREW	AISI 304	
94B	HEXAGON NUT	ISO 3506 A2-70	
94C	SPLIT PIN	CARBON STEEL+ZINC	
95	TAPER PIN HOLDER	AISI 304	
95A	HEXAGON SCREW	ISO 3506 A2-70	
95B	SPRING WASHER	AISI 304	
95C	WASHER	AISI 304	

VC cylinder actuator dimensions



VC actuators without handwheel (UNIT: mm)

Stroke (mm)	#30			#40			#50		
	ØC	370		ØC	460		ØC	560	
	B1	Weight (kg)		B1	Weight (kg)		B1	Weight (kg)	
	B2	A	B	B2	A	B	B2	A	B
40	640	92	115	810	120	148	810	186	234
	760			935			935		
50	650	94	118	820	123	152	820	189	237
	790			965			965		
60	660	97	121	830	126	155	830	192	242
	820			995			995		
70	670	100	124	840	128	159	840	195	246
	850			1025			1025		
80	680	103	127	850	131	162	850	198	251
	880			1055			1055		
90	690	106	130	860	134	166	860	201	256
	910			1085			1085		
100	700	108	133	870	137	173	870	203	261
	940			1115			1115		
120	720	114	139	890	142	177	890	209	270
	1000			1175			1175		
140				910	148	184	910	215	279
				1235			1235		
180				950	159	198	950	227	298
				1355			1355		

VC actuators with handwheel (UNIT: mm)

Stroke (mm)	#30			#40			#50		
	ØC	370		ØC	460		ØC	560	
	B1	Weight (kg)		B1	Weight (kg)		B1	Weight (kg)	
	B2	A	B	B2	A	B	B2	A	B
40	930	134	157	1095	180	208	1095	246	294
	1055			1220			1220		
50	940	137	160	1105	183	212	1105	249	299
	1085			1250			1250		
60	950	139	163	1115	186	215	1115	252	303
	1115			1280			1280		
70	960	142	167	1125	188	219	1125	255	308
	1145			1310			1310		
80	970	144	170	1135	191	222	1135	258	313
	1175			1340			1340		
90	980	147	173	1145	194	226	1145	261	318
	1205			1370			1370		
100	990	150	176	1155	197	230	1155	263	322
	1235			1400			1400		
120	1010	155	183	1175	202	237	1175	269	332
	1295			1460			1460		
140				1195	208	244	1195	275	341
				1520			1520		
180				1235	219	258	1235	287	360
				1640			1640		

VC actuators without handwheel (UNIT: inch)

Stroke (mm)	#30			#40			#50		
	ØC	15		ØC	18		ØC	22	
	B1	Weight (lbs)		B1	Weight (lbs)		B1	Weight (lbs)	
	B2	A	B	B2	A	B	B2	A	B
40	25	203	254	32	265	326	32	410	516
	30			37			37		
50	26	207	260	32	271	335	32	417	522
	31			38			38		
60	26	214	267	33	278	342	33	423	534
	32			39			39		
70	26	220	273	33	282	351	33	430	542
	33			40			40		
80	27	227	280	33	289	357	33	437	553
	35			42			42		
90	27	234	287	34	295	366	34	443	564
	36			43			43		
100	28	238	293	34	302	381	34	448	575
	37			44			44		
120	28	251	306	35	313	390	35	461	595
	39			46			46		
140				36	326	406	36	474	615
				49			49		
180				37	351	437	37	500	657
				53			53		

VC actuators with handwheel (UNIT: inch)

Stroke (mm)	#30			#40			#50		
	ØC	15		ØC	18		ØC	22	
	B1	Weight (lbs)		B1	Weight (lbs)		B1	Weight (lbs)	
	B2	A	B	B2	A	B	B2	A	B
40	37	295	346	43	397	459	43	542	648
	42			48			48		
50	37	302	353	44	403	467	44	549	659
	43			49			49		
60	37	306	359	44	410	474	44	556	668
	44			50			50		
70	38	313	368	44	414	483	44	562	679
	45			52			52		
80	38	317	375	45	421	489	45	569	690
	46			53			53		
90	39	324	381	45	428	498	45	575	701
	47			54			54		
100	39	331	388	45	434	507	45	580	710
	49			55			55		
120	40	342	403	46	445	522	46	593	732
	51			57			57		
140				47	459	538	47	606	752
				60			60		
180				49	483	569	49	633	794
				65			65		

VC actuators without handwheel (UNIT: mm)

Stroke (mm)	#60			#70			#80		
	ØC	660		ØC	710		ØC	820	
	B1	Weight (kg)		B1	Weight (kg)		B1	Weight (kg)	
	B2	A	B	B2	A	B	B2	A	B
100	954 1199	255	344	955 1203	322	438	954 1207	378	519
120	974 1259	262	355	975 1263	330	450	974 1267	386	531
140	994 1319	269	365	995 1323	338	461	994 1327	394	543
180	1034 1439	283	386	1035 1443	354	484	1034 1447	410	567
240	1094 1619	303	417	1095 1623	377	518	1094 1627	435	604
280							1134 1747	451	628

VC actuators with handwheel (UNIT: mm)

Stroke (mm)	#60			#70			#80		
	ØC	660		ØC	710		ØC	820	
	B1	Weight (kg)		B1	Weight (kg)		B1	Weight (kg)	
	B2	A	B	B2	A	B	B2	A	B
100	1239 1484	315	404	1240 1488	368	502	1289 1542	438	579
120	1259 1544	322	415	1260 1548	376	514	1309 1602	446	591
140	1279 1604	329	425	1280 1608	384	525	1329 1662	454	603
180	1319 1724	343	446	1320 1728	400	548	1369 1782	470	627
240	1379 1904	363	477	1380 1908	423	582	1429 1962	495	664
280							1469 2082	511	688

VC actuators without handwheel (UNIT: inch)

Stroke (mm)	#60			#70			#80		
	ØC	26		ØC	28		ØC	32	
	B1	Weight (lbs)		B1	Weight (lbs)		B1	Weight (lbs)	
	B2	A	B	B2	A	B	B2	A	B
100	38 47	562	758	38 47	710	966	37 48	833	1144
120	38 50	578	783	38 50	728	992	38 50	851	1171
140	39 52	593	805	39 52	745	1016	39 52	869	1197
180	41 57	624	851	41 57	780	1067	41 57	904	1250
240	43 64	668	919	43 64	831	1142	43 64	959	1332
280							45 69	994	1385

VC actuators with handwheel (UNIT: inch)

Stroke (mm)	#60			#70			#80		
	ØC	26		ØC	28		ØC	32	
	B1	Weight (lbs)		B1	Weight (lbs)		B1	Weight (lbs)	
	B2	A	B	B2	A	B	B2	A	B
100	49 58	694	891	49 58	811	1107	51 61	966	1276
120	50 61	710	915	50 61	829	1133	52 63	983	1303
140	50 63	725	937	50 63	847	1157	52 65	1001	1329
180	52 68	756	983	52 68	882	1208	54 70	1036	1382
240	54 75	800	1052	54 75	933	1283	56 77	1091	1464
280							58 82	1127	1517

How to order

Pneumatic cylinder actuator, linear type, series VC

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
VC	C	30	X	080	B	V	A	K	X	X	B	V	-

Actuator constructions

1.	ACTUATOR SERIES
VC	Pneumatic cylinder actuator, linear type

2.	FUNCTION CODE
C	Double acting (Springless)
Y	Special

3.	ACTUATOR SIZE
	Outline dimension
30	Ø370 mm
40	Ø460 mm
50	Ø560 mm
	Optional actuator Size
60	Ø660 mm
70	Ø710 mm
80	Ø820 mm
YY	Special

4.	SPRING RANGE
X	Not applicable
Y	Special

5.	STROKE						
	VC_30	VC_40	VC_50	Optional size and stroke	VC_60	VC_70	VC_80
040	IQI	IQI	IQI		IQI	IQI	IQI
050	STD	IQI	IQI		IQI	IQI	IQI
060	STD	STD	IQI		IQI	IQI	IQI
070	STD	IQI	IQI		IQI	IQI	IQI
080	STD	STD	STD		IQI	IQI	IQI
090	STD	STD	STD		IQI	IQI	IQI
100	STD	STD	STD		IQI	IQI	IQI
120	STD	STD	STD		IQI	IQI	IQI
140	IQI	STD	STD		IQI	IQI	IQI
160	IQI	STD	STD		IQI	IQI	IQI
180	IQI	STD	STD		IQI	IQI	IQI
240	IQI	IQI	IQI		IQI	IQI	IQI
280	IQI	IQI	IQI		IQI	IQI	IQI
YYY	Contact Valmet for special stroke						

Materials

6.	ACTUATOR CASE MATERIAL
B	JIS G3101-SS400 (ASTM A-36)
Y	Special

7.	PISTON MATERIAL
V	ASTM B209 ALLOY 6061 T6
Y	Special

8.	SEAL MATERIAL
A	Nitrile rubber
	Optional seal application
L	Low temp. NBR
Y	Special

9.	BOLTING MATERIAL
K	Stainless steel
Y	Special

Others

10.	POSITION LIMITATION
X	Not applicable
	Optional application
M	Mechanical stopper
Y	Special

11.	EXTERNAL OVERRIDE OPTION
X	Not applicable
A	Handwheel
Y	Special mounting side or Special H/W construction

12.	AIR SUPPLY CONNECTION	
	Connection size	Actuator size
B	3/8" NPT	VC_30
C	1/2" NPT	VC_40/50/60/70/80
	Optional air supply connection	
D	3/4" NPT	
Y	Special	

13.	OPTIONS
X	Not applicable
V	Volume chamber
Y	Special

14.	ACTUATOR DESIGN APPLICATION
-	Original type

Valmet Flow Control Oy

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Tel. +358 10 417 5000.

www.valmet.com/flowcontrol

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