

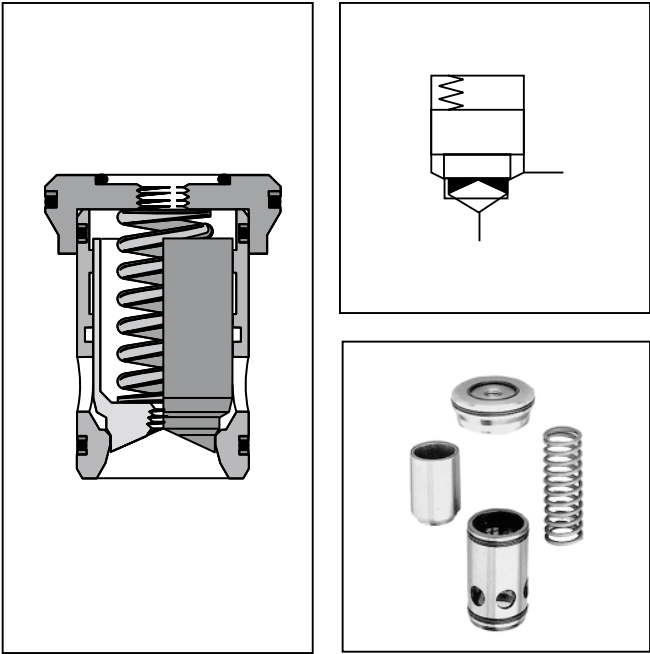
General Description

The CE series slip-in cartridge elements conform to the DIN 24342 standards for manifold installed cartridge valves. A cartridge element consists of a sleeve, poppet, and spring pre-assembled and delivered as a unit assembly. Elements are available in DIN sizes 16, 25, 32, 40, 50, 63, 80, and 100.

Cartridge valve elements can be configured in a system using available covers and pilot valves to produce a variety of functions to control flow or pressure. Refer to the cover and accessories section of this catalog for supporting product information. Both normally open and closed versions are available.

Specifications

Sizes	NG16 to NG100
Operating Pressure	
Ports	A, B and C 350 Bar (5075 PSI) X, Z ₁ , Z ₂ and Y 350 Bar (5075 PSI)
Flow	see table below (Nominal flow)
Installation	into blocks to DIN 24342

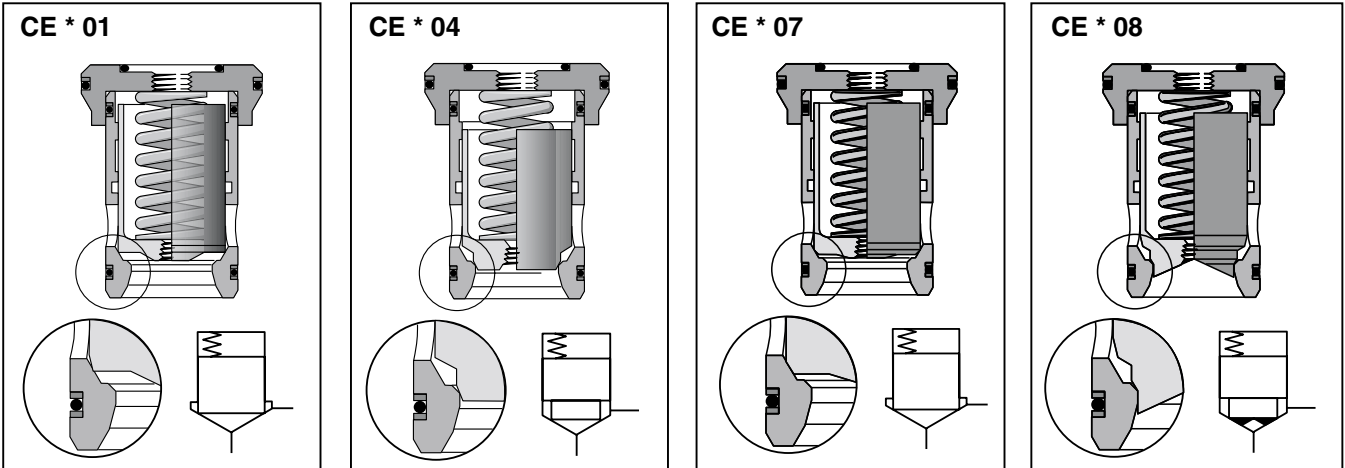


Cartridge Selection

Nominal Size	Nominal Flow LPM (GPM) at $\Delta p = 3.5$ Bar (51 PSI)	Poppet Selection to Variation*			Variation* Selection to Poppets			
		Normally Closed		Normally Open Variation F	Poppets 01	Poppets 04	Poppets 07	Poppets 08
		Variation C Without Seal	Variation S With Seal					
NG 16	215 (56.9)	01, 04, 08	not possible	01, 04, 08	C, F	C, F	not possible	C, F, S
NG 25	400 (105.8)	01, 04, 07, 08	04, 07, 08	01, 04, 08	C, F	C, F, S	C, F, S	C, F, S
NG 32	770 (203.7)	01, 04, 07, 08	04, 07, 08	01, 04, 08	C, F	C, F, S	C, F, S	C, F, S
NG 40	1050 (277.8)	01, 04, 07, 08	04, 07, 08	01, 04, 08	C, F	C, F, S	C, F, S	C, F, S
NG 50	1750 (463.0)	01, 04, 07, 08	04, 07, 08	01, 04, 08	C, F	C, F, S	C, F, S	C, F, S
NG 63	3000 (793.7)	01, 04, 07, 08	04, 07, 08	01, 04, 08	C, F	C, F, S	C, F, S	C, F, S
NG 80	4500 (1190.5)	01, 04, 08	01, 04, 08	01, 04, 08	C, F, S	C, F, S	not possible	C, F, S
NG 100	7000 (1851.9)	01, 04, 08	01, 04, 08	01, 04, 08	C, F, S	C, F, S	not possible	C, F, S

* See ordering code for description of codes and variations

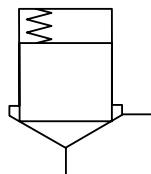
Poppet Selection CE



CE.p65, dd, an

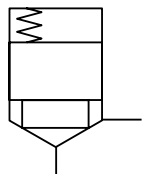
Cartridges CE

Poppets 01 and 07

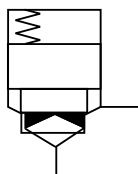


Poppet 04

Variation without orifice



Poppet 08

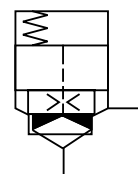
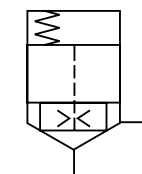
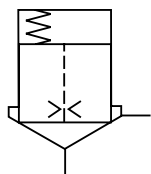


Poppet 01 similar to 07



CE 050

Variation with orifice



Poppet 04



Poppet 08

Pilot Flow Requirement

Nominal Size	CE 16			CE 025			CE 032			CE 040		
Poppet	01	04	08	01	04	08	01	04	08	01	04	08
	—	—	—	07	—	—	07	—	—	07	—	—
Pilot Requirement cm ³ in ³	2.03 (0.12)	2.03 (0.12)	2.03 (0.12)	6.45 (0.39)	6.45 (0.39)	7.42 (0.45)	10.17 (0.62)	12.21 (0.74)	15.26 (0.93)	17.42 (1.06)	20.32 (1.24)	23.22 (1.42)
Stroke mm (inch)	8.0 (0.31)	8.0 (0.31)	8.0 (0.31)	10.0 (0.39)	10.0 (0.39)	11.5 (0.45)	10.0 (0.39)	12.0 (0.47)	15.0 (0.59)	12.0 (0.47)	14.0 (0.55)	16.0 (0.63)

Nominal Size	CE 050			CE 063			CE 080			CE 100		
Poppet	01	04	08	01	04	08	01	04	08	01	04	08
	07	—	—	07	—	—	—	—	—	—	—	—
Pilot Requirement cm ³ in ³	34.46 (2.10)	39.40 (2.40)	49.24 (3.00)	77.38 (4.72)	94.56 (5.77)	111.76 (6.82)	190.10 (11.60)	190.10 (11.60)	217.26 (13.26)	342.60 (20.90)	363.35 (22.17)	415.26 (25.34)
Stroke mm (inch)	14.0 (0.55)	16.0 (0.63)	20.0 (0.79)	18.0 (0.71)	22.0 (0.87)	26.0 (1.02)	28.0 (1.10)	28.0 (1.10)	32.0 (1.26)	33.0 (1.30)	35.0 (1.38)	40.0 (1.57)

Cracking Pressure/Direction of Flow

Variation: Normally Closed

Poppet	Spring Code L 0.1 Bar (1 PSI)		Spring Code N 0.5 Bar (7 PSI)		Spring Code S 1.6 Bar (23 PSI)		Spring Code U 4.0 Bar (58 PSI)	
Direction of Flow	A→B	B→A	A→B	B→A	A→B	B→A	A→B	B→A
Poppets 01 and 07	0.1 Bar (1 PSI)	not possible	0.5 Bar (7 PSI)	not possible	1.6 Bar (23 PSI)	not possible	4.0 Bar (58 PSI)	not possible
Poppet 04 and 08	0.16 Bar (2 PSI)	0.25 Bar (4 PSI)	0.85 Bar (12 PSI)	1.25 Bar (18 PSI)	2.7 Bar (39 PSI)	4.0 Bar (58 PSI)	6.6 Bar (96 PSI)	10 Bar (145 PSI)

Valves "normally open" are only available with a spring to code: "L". Mechanical forces caused by direction of flow and volume can be neglected as far as the closing operation is concerned.

Variation: Normally Open

Poppet 01*, 04 and 08	Spring Code L 0.1 Bar (1 PSI)	
Direction of Flow	A→B	B→A

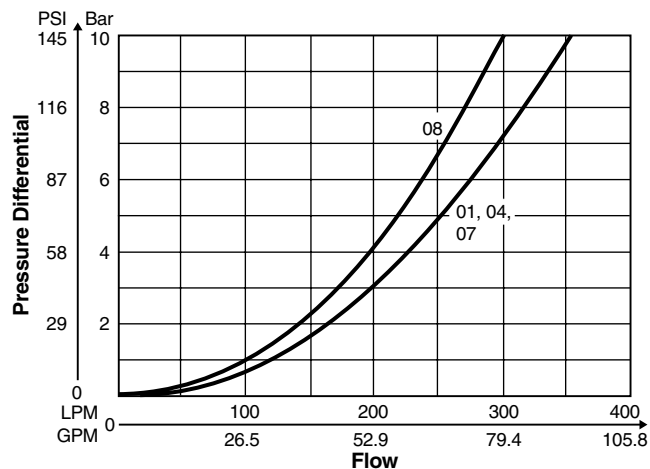
* only A→B

Leakage

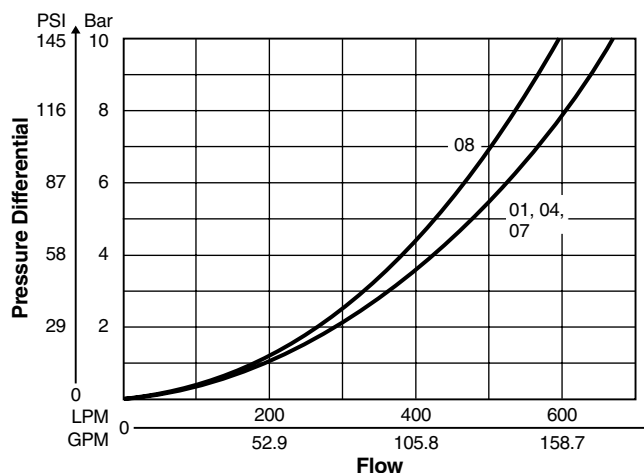
A pressure difference between pilot port "C" and Annulus port "B" may result in some internal leakage. Leakage can be minimized by selecting the cartridge seal option; variation "S" in the ordering code.

Cartridges CE

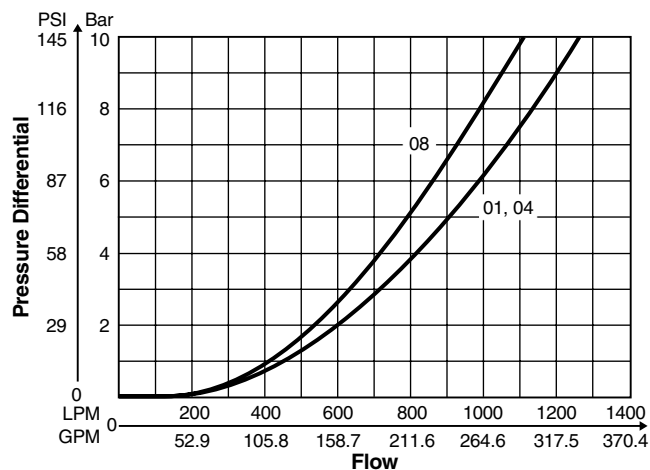
CE 016



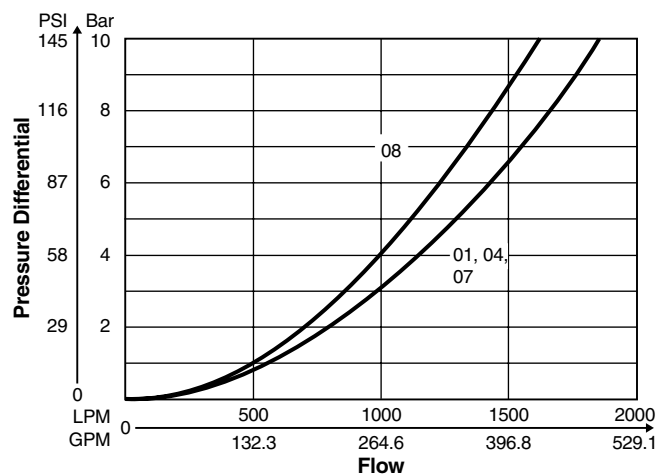
CE 025



CE 032



CE 040

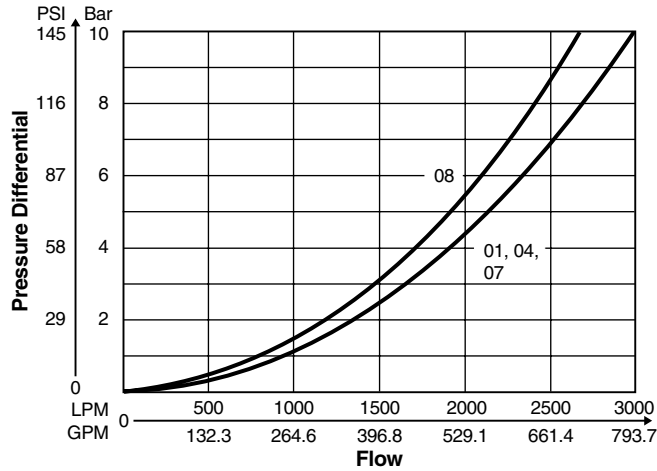


The values of flow and pressure drop are valid for oil temperature of 50°C (122°F) and viscosity of 25 cSt (mm²/s). Port C pressure less, no closing spring fitted.

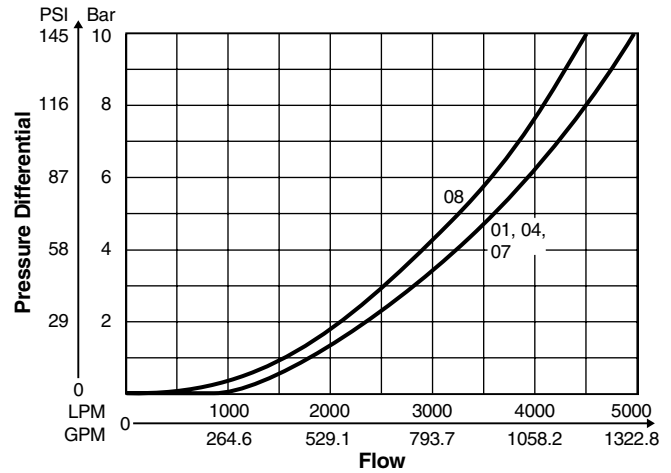
CE.p65, dd, an

Cartridges CE

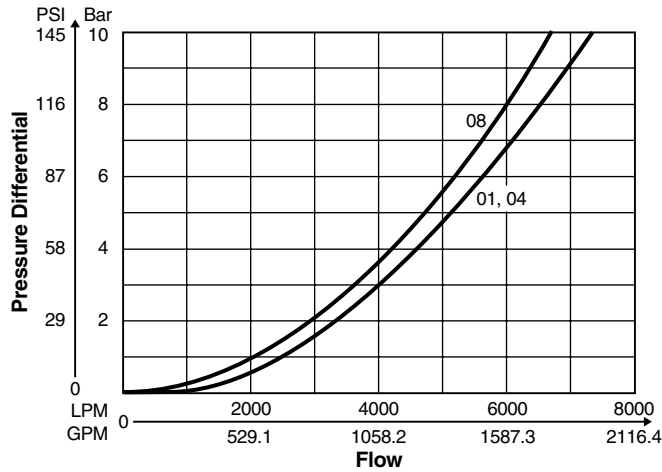
CE 050



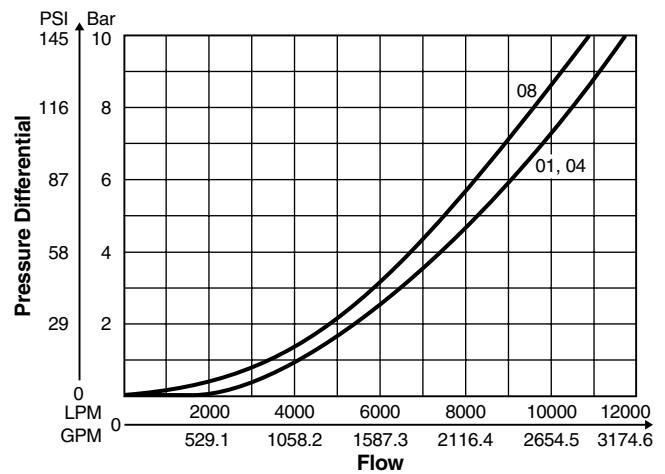
CE 063



CE 080



CE 100



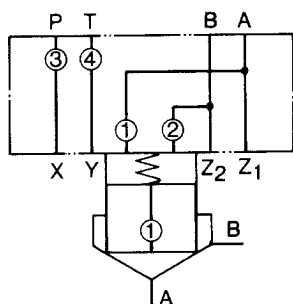
The Values of flow and pressure drop are valid for oil temperature of 50°C (122°F) and viscosity of 25 cSt (mm²/s). Port C pressure less, no closing spring fitted.

CE.p65, dd, an

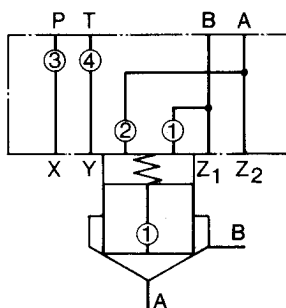
Orifice Selection and Position

The following tables contain suggested orifice sizes for typical applications. Both cover and cartridge element orifices, as well as the recommended poppet spring are listed for convenience. Cartridge element orifices are indicated in position (1): poppet schematic, and are selected by ordering code.

C * C and CE016 to 040



C * C and CE050 to 100



Pressure Relief Function

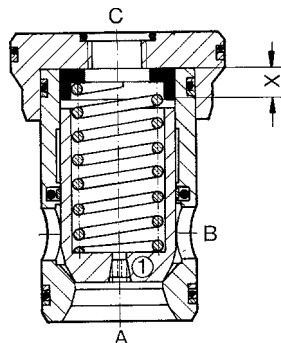
Nominal Size	①	②	③	④	CE ①	CE Spring
CE 016	11	00	99	13	09	S
CE 025	13	00	99	15	11	S
CE 032	14	00	99	17	12	S
CE 040	15	00	99	18	13	S
CE 050	16	00	99	20	14	S
CE 063	17	00	99	22	15	S

Sequence Function

Nominal Size	①	②	③	④	CE ①	CE Spring
CE 016	11	00	09	13	00	U
CE 025	13	00	11	15	00	U
CE 032	14	00	12	17	00	U
CE 040	15	00	13	18	00	U

Stroke Limiter

The stroke of the poppet can be limited by a stroke limiter ring. Refer to table.



Nominal Size	Dimension "X" mm (in.)	Part Number
CE 016	4 (0.16)	45036506
	6 (0.24)	45036974
CE 025	5 (0.20)	45036507
	8 (0.31)	45036980

Note that orifice codes refer to the actual orifice diameter in tenths of millimeters. For example: a code "22" orifice is 2.2 mm (0.086 in.) in diameter. Code '00' is a plug, code '99' refers to no orifice installed. Refer to the Slip-In Cartridge Cover section of this catalog for thread size, and part number references.

Pressure Relief Function

Proportional solenoid operated

Nominal Size	①	②	③	④	CE ①	CE Spring
CE 016	11	00	99	12	09	N
CE 025	13	00	99	14	11	N
CE 032	13	00	99	14	12	N
CE 040	14	00	99	15	13	N
CE 050	15	00	99	16	14	N
CE 063	15	00	99	16	14	N

By-Passing Function

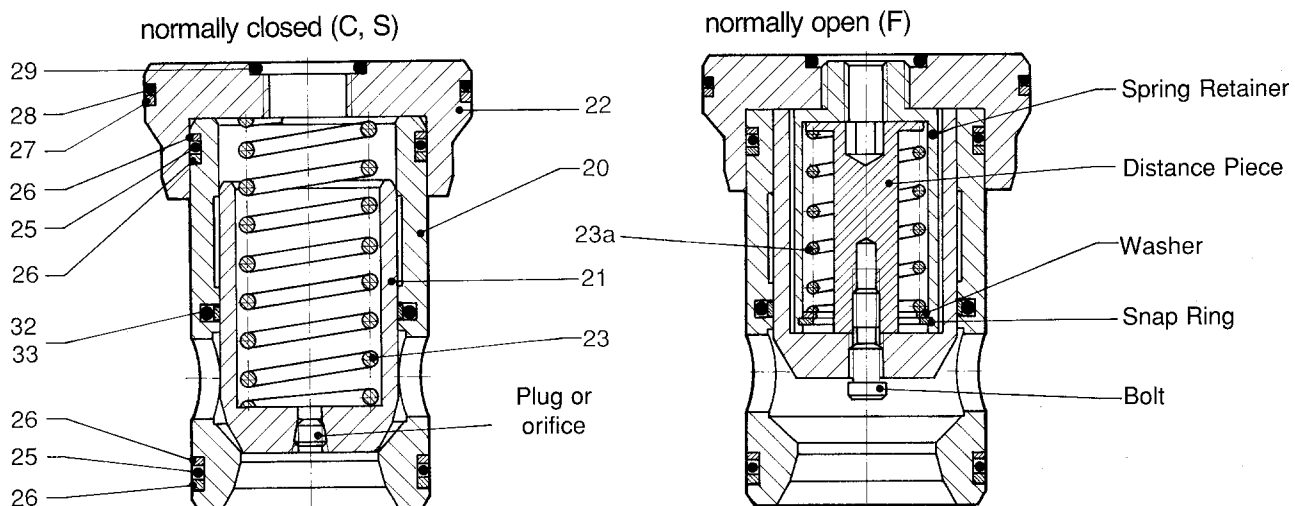
Nominal Size	①	②	③	④	CE ①	CE Spring
CE 016	14	00	99	15	09	S
CE 025	15	00	99	16	11	S
CE 032	16	00	99	17	12	S
CE 040	17	00	99	18	13	S
CE 050	18	00	99	19	14	S
CE 063	19	00	99	20	15	S

3-Way Compensator Function

Nominal Size	①	②	③	④	CE ①	CE Spring
CE 016	11	00	99	13	09	S
CE 025	13	00	99	15	11	S
CE 032	14	00	99	17	12	S
CE 040	15	00	99	18	13	S
CE 050	16	00	99	20	14	S
CE 063	17	00	99	22	15	S

Nominal Size	Dimension "X" mm (in.)	Part Number
CE 032	6 (0.24)	45036508
	11.5 (0.45)	45036858
CE 040	12 (0.47)	45036921
	13.5 (0.53)	45037045
CE 050	12 (0.47)	45037202
	15.5 (0.61)	45037046
CE 063	5 (0.20)	45036990
	11 (0.43)	45036511
CE 080	13 (0.51)	45037247
CE 100	on request only	

CE, p65, dd, an



Spare Parts

Position Nr.	Description	Part Number							
		CE 016	CE 025	CE 032	CE 040	CE 050	CE 063	CE 080	CE 100
20	cage	35036363	35036377	35036389	35036403	35036417	25036432	25036452	25036470
21	poppet 01	45036369	45036379	45036392	45036409	45036421	45036437	35036449	35036467
	poppet 04	45036370	45036380	45036395	45036406	45036422	45036436	35036460	35036468
	poppet 07	—	45036964	45036965	45036966	45036967	45036968	—	—
	poppet 08	45036368	45036381	45036391	45036408	45036424	45036438	35036459	35036469
23	spring L 0.1 Bar (1 PSI)	45051368	45051375	45051376	45051382	45051384	45051388	45051395	45051400
	spring N 0.5 Bar (7 PSI)	45051369	45051374	45051377	45051381	45051385	45051389	45051396	45051401
	spring S 1.6 Bar (23 PSI)	45051370	45051372	45051378	45051380	45051386	45051390	45051397	45051402
	spring U 4.0 Bar (58 PSI)	45051371	45051373	45051379	45051383	45051387	45051391	45051398	45051403
23a	spring L 0.1 Bar (1 PSI)	45051435	45051436	45051429	45051433	45051432	45051430	45051431	45051428
22	retainer	35036364	45036375	45036393	35036402	35036416	35036435	25036453	25036471
29	O-Ring Nitrile N 552-90	5000934	5000971	5000976	5000980	5000984	5000988	5002481	5001004
	Fluorocarbon V 747-90	5001038 2-115	5001066 2-213	5001070 2-218	5001074 2-222	5001078 2-226	5001082 2-231	5002485 2-339	5002526 2-345
27	O-Ring Nitrile N 552-90	5000916	5000948	5000957	5000988	5000992	5000966	5002481	5001008
	Fluorocarbon V 747-90	5001026 2-024	5001090 2-129	5001059 2-139	5001082 2-231	5001085 2-236	5001093 2-246	5002485 2-355	5001094 2-439
28	backup ring N 300-90	—	—	5001147 8-139	5002576 8-231	5001157 8-236	5001161 8-246	5002483 8-355	5002478 8-439
25	O-Ring Nitrile N 552-90	5000912	5000941	5000948	5000983	5000965	5000992	5002480	5002476
	Fluorocarbon V 747-90	5001022 2-020	5001045 2-122	5001090 2-129	5001077 2-225	5001091 2-229	5001085 2-236	5002484 2-344	5002479 2-352
26	backup ring N 300-90	—	—	5001143 8-129	5001163 8-225	5001162 8-229	5001157 8-236	5002482 8-344	5002477 8-352
32 33	poppet seal kit Nitrile only	—	46212761	46212762	46212763	46212764	46212765	46212766	46212767

Seal Kit

Position Nr.	Variation	Material	Part Number							
			CE016	CE025	CE032	CE040	CE050	CE063	CE080	CE100
25 to 29	C and F	Nitrile	SK-CBE 160	SK-CBE 250	SK-CBE 320	SK-CBE 400	SK-CBE 500	SK-CBE 630	SK-CBE 800	SK-CBE 1000
	C and F	Fluorocarbon	SK-CBE 160V	SK-CBE 250V	SK-CBE 320V	SK-CBE 400V	SK-CBE 500V	SK-CBE 630V	SK-CBE 800V	SK-CBE 1000V

For variation "S" (with seal) order seal kit for variation "C" or "F" plus poppet seal kit pos. 32 and 33.



Cartridge



Nominal
Size

Code	Description
016	NG16
025	NG25
032	NG32
040	NG40
050	NG50
063	NG63
080	NG80
100	NG100



Variation



Poppet
Type

Code	Description
01	$A_A = A_C$
04	$A_A = 0.6 A_C$ $A_B = 0.4 A_C$
07*	$A_A = 0.96 A_C$
08	$A_A = 0.6 A_C$ $A_B = 0.4 A_C$

*Not for NG 16, NG 80
and NG 100.



Closing
Spring



Orifice

1

Code	Description
00	Closed
99	Open
Code	Orifice Diameter
08*	0.8 mm (0.03 in.)
20*	2.0 mm (0.08 in.)

* Note:
Orifice codes refer to the
actual orifice diameter in
tenths of millimeters.
For example:
a code "22" orifice is 2.2
mm (0.086 in.) in
diameter.

Refer to the "orifice and
stroke limiting" page of
this section for application
guidelines and available
orifice sizes.



Seals



Design Series
Not
required
for ordering

Code	Description
Normally Closed	
C	Standard, no poppet seal
S*	With poppet seal
Normally Opened	
F	Standard, no poppet seal

* Poppet seal option "S" is not
available with poppet type "01" in
sizes "080" and "100". Only
springs "S" and "U" are available
with seal option "S". No seal
options are available in size "016".

Code	Pressure
A	Without spring
L	0.1 Bar (1 PSI)
N*	0.5 Bar (7 PSI)
S*	1.6 Bar (23 PSI)
U*	4.0 Bar (58 PSI)

* Not for code "F",
Normally open.

Code	Description
N	Nitrile
V	Fluorocarbon

Weight:	NG6	0.18 kg	(0.4 lbs.)
	NG10	0.41 kg	(0.9 lbs.)
	NG32	0.85 kg	(1.9 lbs.)
	NG40	1.65 kg	(3.6 lbs.)
	NG50	2.70 kg	(6.0 lbs.)
	NG63	6.20 kg	(13.7 lbs.)
	NG80	10.9 kg	(24.0 lbs.)
	NG100	16.0 kg	(35.3 lbs.)

Accessories

Refer to the [Accessories](#) section for bolt kits.