

## NELES FINETROL® LOW Cv CONTROL VALVE, SERIES FL

Neles FL-series control valves are economical high performance rotary valves for low Cv applications. FL-series offers three different capacity options and fulfils the offering of other control valves in low capacity applications.

Standard units are equipped with either diaphragm or cylinder actuators and ND9000® intelligent valve controllers for precise control, reliability and performance monitoring on-line.

### FEATURES

#### Accurate control

- Carefully designed V-ported plug, low torque requirements and clearance-free movement result in good control performance.

#### Safety and environment

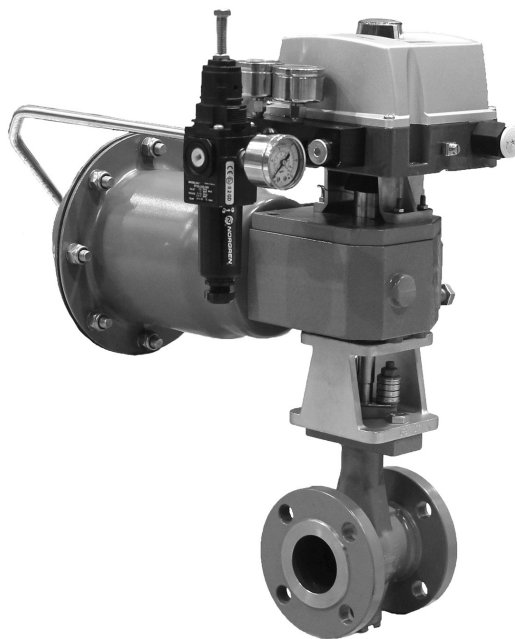
- Rotary operation reduces fugitive emissions dramatically compared to rising stem design.
- Live-loaded gland packing.
  - ISO 15848 with graphite packing
  - TA-Luft with graphite packing.

#### Economical

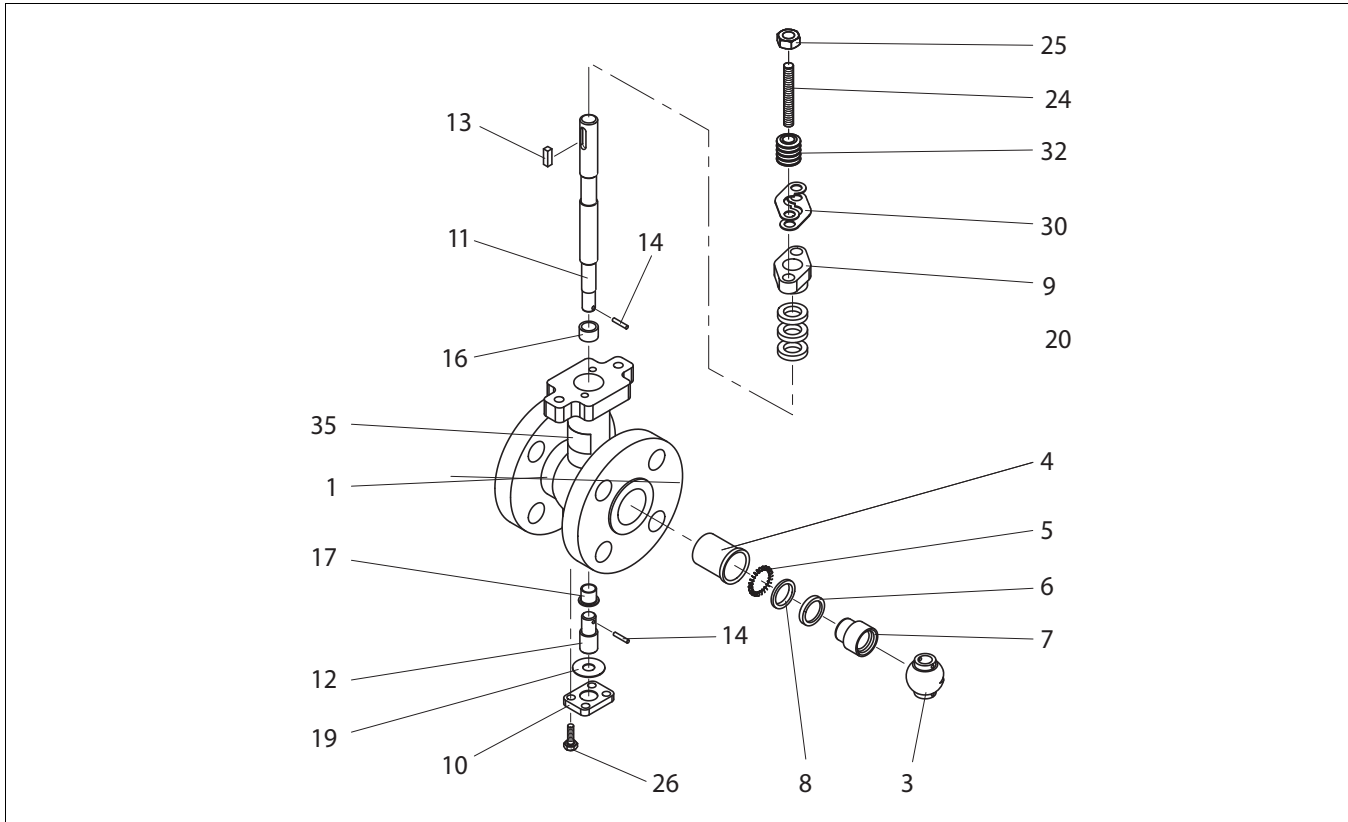
- Low torque requirements reduces wear, resulting in better reliability. In addition, the standard design is equipped with hard chrome faced plug and cobalt based alloy seat, which has been designed to minimize flow impingement. Together with low friction bearing design and live-loaded packing, operational life is extended and maintenance needs are minimised. Low torque operation combined with a well integrated actuator design provides a lower cost valve assembly.

#### Low flow trims

- The FL model features three Cv trims sizes 4.2, 1.5 and 0.5. This allows high control resolution and optimal control accuracy.



## EXPLODED VIEW



## PARTS LIST\*

Item	Qty.	Description	Material
1	1	Body	Stainless steel CF8M / carbon steel WCB
3	1	Plug	Stainless steel 316 + hard chromium coating
4	1	Bushing	AISI 316
5	1	Spring	Inconel X-750
6	1	Back seal	Graphite
7	1	Seat	Alloy 50
8	1	Support ring	AISI 316
9	1	Gland	Stainless steel CF8M
10	1	Blind flange	Stainless steel CF8M
11	1	Drive shaft	Stainless steel 17-4 PH nitrided
12	1	Shaft	Stainless steel 17-4 PH nitrided
13	1	Key	SS 142324
14	2	Cylindrical pin	SS 142324
16	1	Upper bearing	Stainless steel 17-4 PH nitrided
17	1	Lower bearing	Stainless steel 17-4 PH nitrided
19	1	Gasket	Graphite
20	3	Packing ring	PTFE/Graphite
24	2	Stud	ISO 3506 A4/B8M
25	2	Hexagon nut	ISO 3506 A4/8M
26	4	Hexagon screw	ISO 3506 A4/B8M
30	2	Retainer plate	AISI 316
32	2	Disc spring set	SIS 2324 & CrMO steel + ENP
35	1	Identification plate	AISI 316

\* The parts are not in number order since certain part has dedicated part number.

## TECHNICAL SPECIFICATIONS

### Type

Metal seated, V-ported plug, quarter-turn valve

### Pressure ratings

Body: ASME 150-300, EN PN 10-40.

### Size

DN 25 / 1"

### End-connections

Flanged

### Face-to-face dimensions

ASME/ISA S75.04, IEC 534-3-2.

### Temperature range

-40 °C ... +425 °C / -40...+797 °F.

### Inherent flow characteristic

Linear.

### Shut-off classification

IEC 60534-4 / ASME/FCI 70.2 Class IV.

### Flow capacity

See table on this page.

### Valve trim rotation

Clockwise to close.

### Valve body and seat test

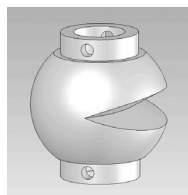
All valves manufactured by Metso undergo pressure testing. The test pressure of FL-series valve body is 1.5 x the pressure rating and the test pressure of seat is 3.5 bar or pressure agreed with customer. The test medium is water containing a corrosion inhibitor.

### Maximum Cv for FL-series valves

Valve size		
DN /Inch	Trim	Cv 100%
25 / 1	C1	4.2
25 / 1	C2	1.5
25 / 1	C3	0.5

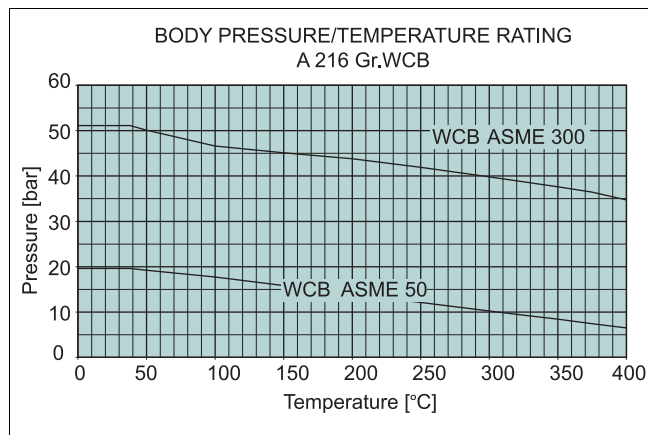
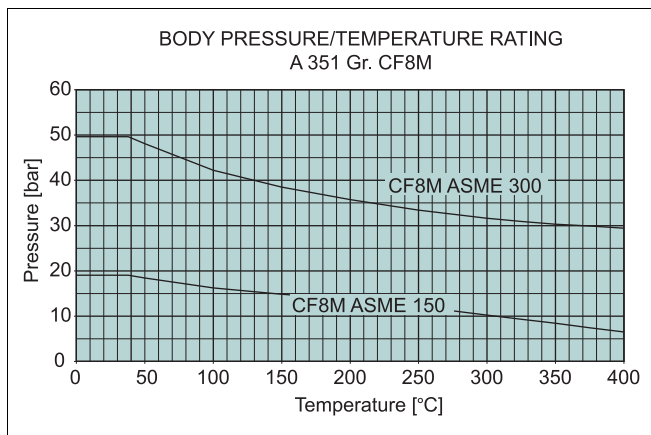
## CONSTRUCTION

### Low Cv trims



Specially engineered reduced Cv trims can control very low flows with high accuracy. The trim orifice is continually increasing which also acts as a self flushing feature.

## BODY PRESSURE RATINGS

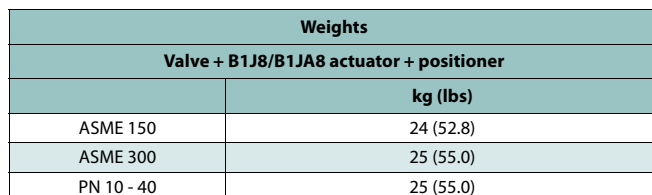


Technical drawing of the 1000 Series Ball Valve showing three views: top, side, and front. The drawing includes dimensions in millimeters (mm) and inches (in).

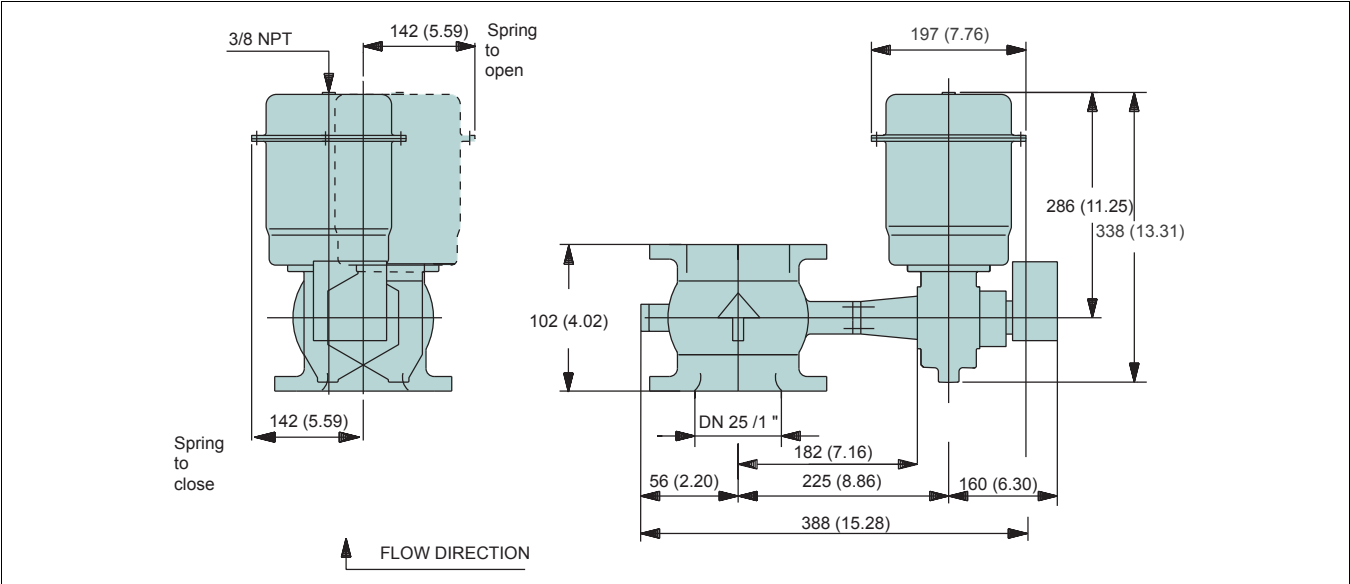
- Top View:**
  - Overall width: 70 (2.76)
  - Overall height: 102 (4.02)
  - Handle length: 4.75 (0.19)
  - Handle thread: M10
- Side View:**
  - Overall height: 182 (7.16)
  - Overall width: 207 (8.15)
  - Handle length: 17 (0.67)
  - Flange thickness: 15 (0.59)
- Front View:**
  - Overall height: 56 (2.20)
  - Overall width: 207 (8.15)
  - Flange thickness: 15 (0.59)

Valve is shown in closed position

### Valve + B1C6 and B1J8 actuator



Valve + QPX1 actuator



Weights	
Valve + QPX1 actuator	
	kg (lbs)
ASME 150	18 (39.7)
ASME 300	20 (44.1)

## HOW TO ORDER

Example: The following example is for a FL flanged valve, with 1" size (01), end connection ASME B16.5 Ra 3.2 - 6.3 (W), trim Cv 4.2 live-loaded packing (C1), body, blind flange, bushing & gland materials (S6), plug coating, stem material type & bearings (KB), seat type, seat material, back seal, packing & bonnet seal (LGT), studs & nuts (D).

1.	2.	3.	4.	5.	6.	7.	8.	9.
FL	01	D	W	C1	S6	KB	LGT	D

1. Sign	Product series
FL	Flanged one piece body, V-port plug, face-to-face acc. to ISA S75.04 and DIN/IEC Part 3-2.

2. Sign	Size
01	1"
025	25 mm

3. Sign	Pressure rating and flange drilling
C	ASME 150
D	ASME 300
M	EN PN 40 (covers PN 10 - 40)
R	JIS 10K
S	JIS 16K
T	JIS 20K

4. Sign	End connection style
W	ASME B16.5, Ra 3.2-6.3
C	EN 1092-1 type B1 (Ra 3.2 - 12.5)

5. Sign	Trim
C1	Max Cv-value 4.2, FTO, Live loaded single packing
C2	Max Cv-value 1.5, FTO, Live loaded single packing
C3	Max Cv-value 0.5, FTO, Live loaded single packing

6. Sign	Body	Blind flange	Bushing	Gland
S6	CF8M	CF8M	316 SS	316 SS
J2	WCB	CF8M	316 SS	316 SS

7. Sign	Plug	Coating	Stem material type	Bearings
KB	316	Hard chromium	17-4PH, nitrided keyway	17-4PH, nitrided

8. Sign	Seat type	Seat material	Back seal	Packings	Bonnet seal
LGT	Low Cv	Cobalt based alloy	Graphite	V-ring PTFE	Graphite
LGG	Low Cv	Cobalt based alloy	Graphite	Graphite	Graphite

9. Sign	Studs	Nuts
D	A4 / B8M	A4 / 8M

Subject to change without prior notice.



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