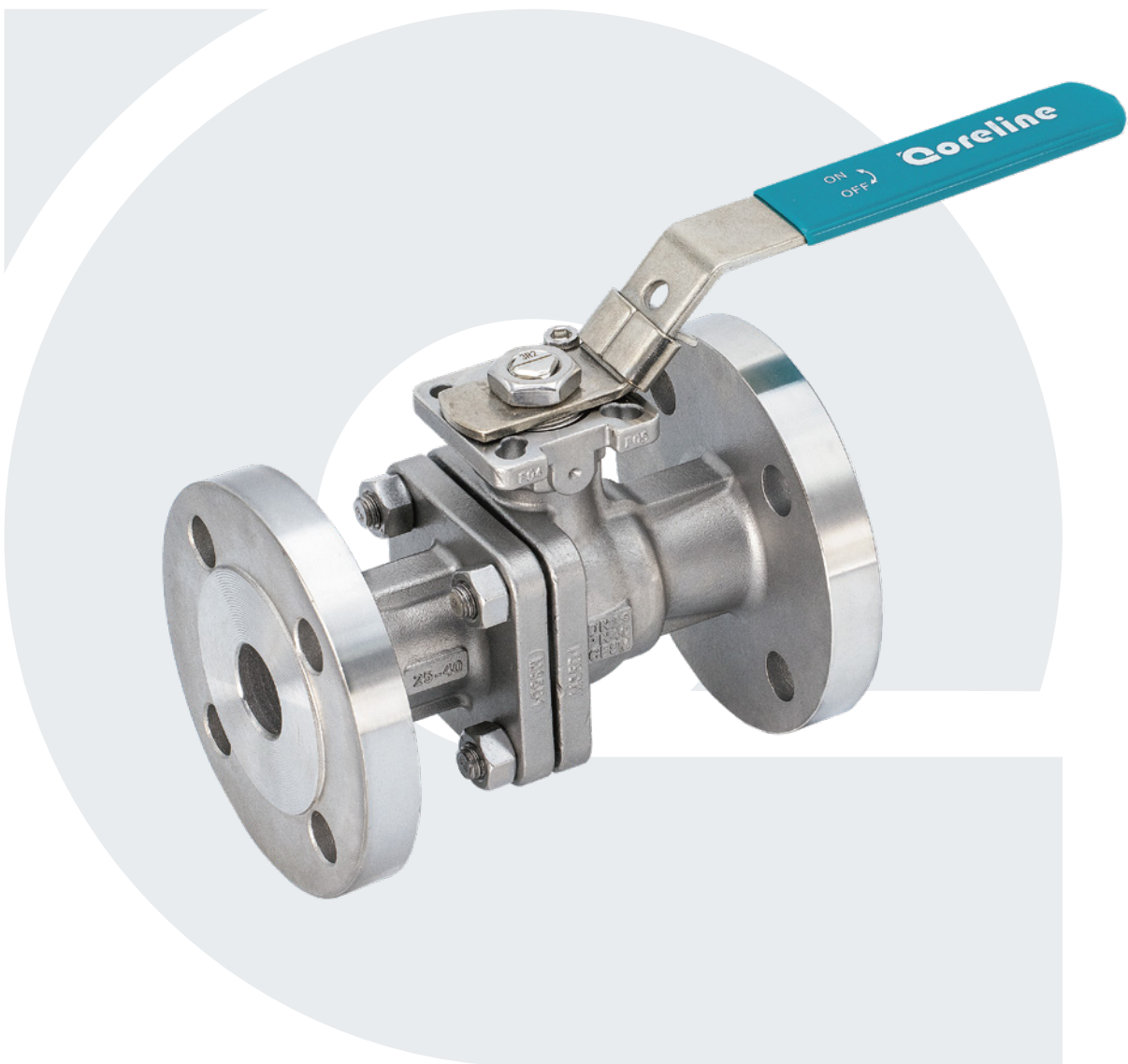
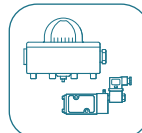
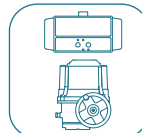
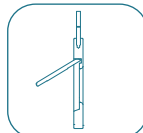
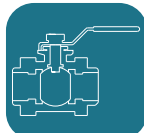
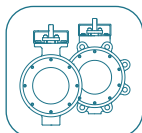
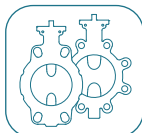


2pc Flanged ball valve

Fig.151 : F1 long pattern



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Geeral information

Features

- Face to face dimension confirms to DIN3202 F1.
- Fire safe design.
- Wax casting with excellent surface finish.
- Full bore for better Kv value.
- Anti-static devices for ball - stem - body.
- Blow-out proof stem.
- Pressure relief hole in ball slot.
- ISO5211 direct mounting pad for easy automation.



Specifications

Connection:	Flanged ends according to DIN EN1092-1
Size range:	DN15-DN100
Pressure rating:	DN15-DN50: PN16/PN40 DN65-DN100: PN16
Face to face:	DIN3202 F1 / BS EN558-1 R1
Body:	Carbon steel, stainless steel
Seat:	PTFE with 25% carbon, PTFE, TFM1600
Operation:	Hand lever, pneumatic actuator, electric actuator



ATEX, CE, SIL and EU1935/2004 (European food approval) for Coreline ball valves.

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page 4	Material part list
page 5	Dimensions
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page 8	Actuators and accessories

Design features, differences

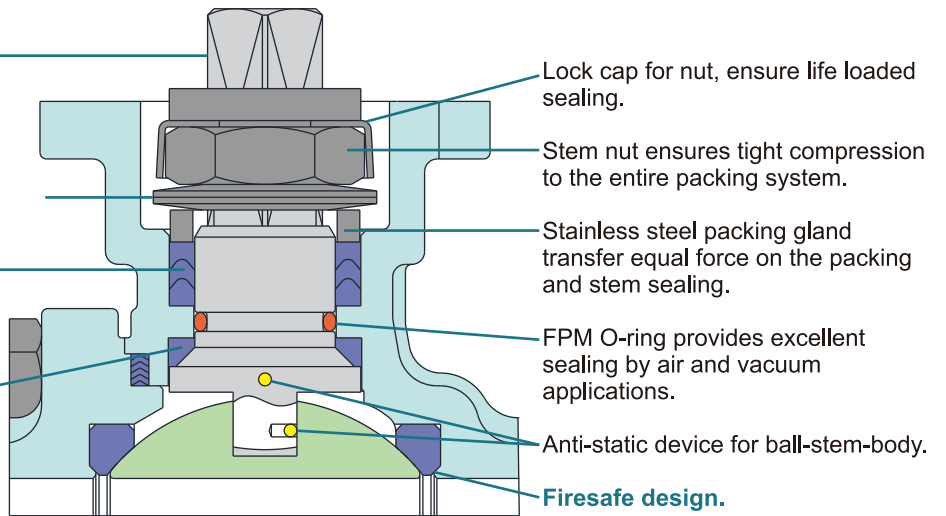
Design features

Stem is square which is good for automation, having four driving points to absorb strength.



Belleville washer ensure life loaded stem sealing, even with temperature fluctuations.

Chevron shape packing in highly wear-resistant PTFE+25% carbon material, provide optimum stem packing box and long cycle life.

☆ **Specially designed 45° slope** of stem together with packing - ensuring very long life time of primary sealing.

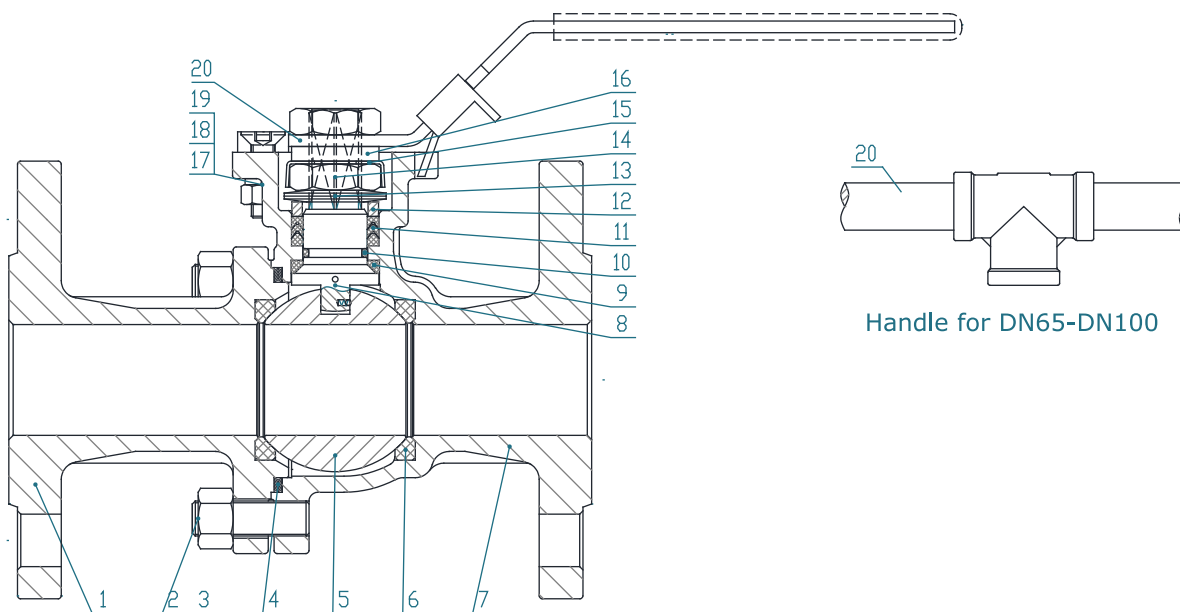


Differences - Fig.151 & Fig.150

ITEM	Fig.151	Fig.150
Picture		
Size range	DN15-DN100	DN15-DN200
Face to face	DIN 3202 F1	DN15-DN100: DIN3202 F4; DN125-DN200: DIN3202 F5
Metal seat	Available	Not available
Spiral wounded gasket	Available	Not available
Firesafe DN15-DN25	Available	Not available
ISO5211 & stem drive	DN65: F07+F10 17×17 DN100: F10+F12 22×22	DN65: F05+F07 14×14 DN100: F07+F10 17×17

* Please check the catalogs for more design differences.

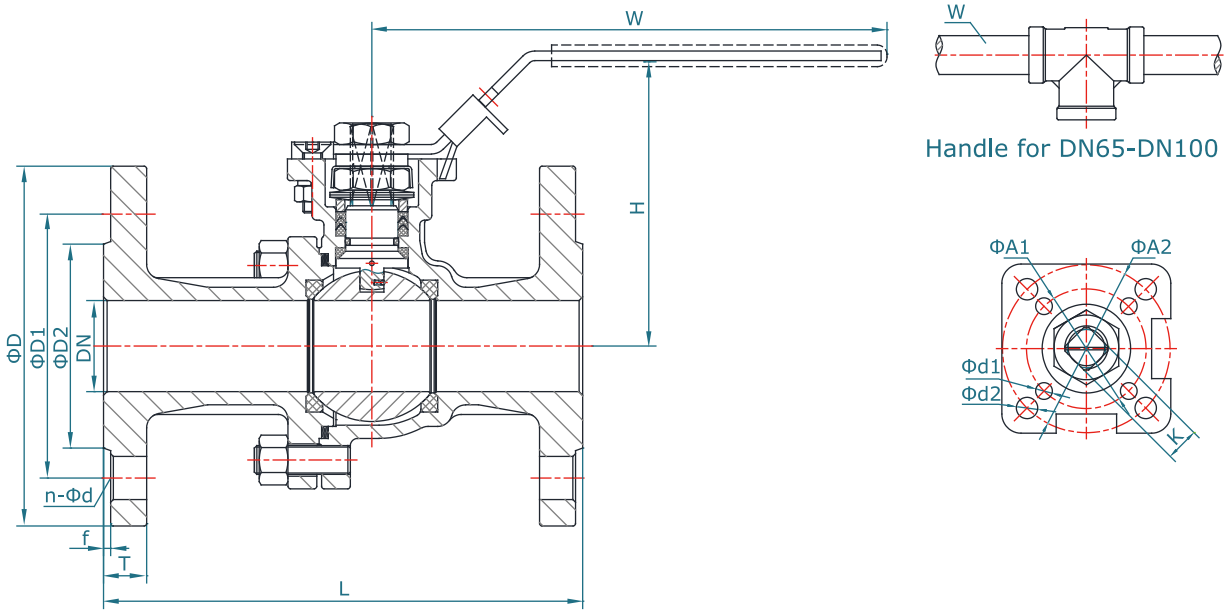
Material part list



Material part list

No.	Part name	Material		
1	Cap	A351 CF8M	A351 CF8	A216 WCB
2	Bolt	SS304	SS304	SS304
3	Nut	SS304	SS304	SS304
4	Body gasket	Same as Seat, Spiral wound	Same as Seat, Spiral wound	Same as Seat, Spiral wound
5	Ball	SS316	SS304	SS304
6	Seat	PTFE+25%C, PTFE, TFM1600	PTFE+25%C, PTFE, TFM1600	PTFE+25%C, PTFE, TFM1600
7	Body	A351 CF8M	A351 CF8	A216 WCB
8	Stem	SS316	SS304	SS304
9	Stem sealing	Same as Seat	Same as Seat	Same as Seat
10	O-ring	FPM	FPM	FPM
11	V-ring packing	Same as Seat	Same as Seat	Same as Seat
12	Packing gland	SS304	SS304	SS304
13	Belleville washer	SS304	SS304	SS304
14	Nut	SS304	SS304	SS304
15	Stop lock cap	SS304	SS304	SS304
16	Washer	SS304	SS304	SS304
17	Stop bolt	SS304	SS304	SS304
18	Washer	SS304	SS304	SS304
19	Nut	SS304	SS304	SS304
20	Handle	SS304	SS304	SS304

Dimensions



Dimensions

Size		Valve with handle								
INCH	DN	L	H	W	D	D1	D2	T	f	n-φd
1/2"	15	130	82	134	95	65	45	16	2	4-φ14
3/4"	20	150	87	134	105	75	58	18	2	4-φ14
1"	25	160	96.5	165	115	85	68	18	2	4-φ14
1 1/4"	32	180	107.5	165	140	100	78	18	2	4-φ18
1 1/2"	40	200	118.5	215	150	110	88	18	3	4-φ18
2"	50	230	127	215	165	125	102	20	3	4-φ18
2 1/2"	65	290	145	300	185	145	122	18	3	4-φ18
3"	80	310	154	370	200	160	138	20	3	8-φ18
4"	100	350	196	500	220	180	158	20	3	8-φ18

1) DN15-DN50: PN40/PN16; DN65-DN100: PN16.

Top flange connection

Size		Mounting flange						Stem	
INCH	DN	ISO5211	A2	d2	ISO5211	A1	d1	K	h
1/2"	15	F03	36	6	F04	42	6	9	8.5
3/4"	20	F03	36	6	F04	42	6	9	8.5
1"	25	F04	42	6	F05	50	7	11	12
1 1/4"	32	F04	42	6	F05	50	7	11	12
1 1/2"	40	F05	50	7	F07	70	9	14	15
2"	50	F05	50	7	F07	70	9	14	15
2 1/2"	65	F07	70	10	F10	102	12	17	18
3"	80	F07	70	10	F10	102	12	17	18
4"	100	F10	102	12	F12	125	14	22	23

Technical data

Technical data

Size		1) Torque - Valve	2) Kv - 90°	Weight - PN16
INCH	DN	[Nm]	[m³/h]	[kg]
1/2"	15	8	35	2.4
3/4"	20	10	64	3.2
1"	25	12	111	4.4
1 1/4"	32	20	197	6.1
1 1/2"	40	32	312	7.9
2"	50	45	543	11.1
2 1/2"	65	80	902	15.1
3"	80	110	1329	19.6
4"	100	150	2428	29.8

1) Torque value is based on PTFE+25% carbon seat and it includes 30% safety factor.

(Test: 0bar differential pressure, ambient temperature, non-lubricating).

2) Kv-value rated flow coefficients (m³/h at 1 bar ΔP).

Service factor [SF]	Multiply by	Medium factor [MF]	Multiply by
ON/OFF operation	1.00	Clean, particle free, non-lubricating (water, alcohol, etc)	1.00
Modulating operation	1.20	Clean, particle free, lubricating (oils, hydraulic fluid, etc)	0.80
Once per day operations	1.20	*) Slurries or heavily corroded, solvents and contaminated systems	2.00
Once every two days or a "Plant Critical" operation	1.50	Gas, saturated steam or superheated steam, clean	1.00-1.30

Sizing torque = Basic torque * [MF] * [SF]

*) Using ball valves in contaminated systems will reduce life time.

The flow coefficient - Kv can be calculated according to the below formula:

Liquid:

$$K_V = Q * \sqrt{\frac{W}{\Delta P}}$$

Gas:

$$K_V = \frac{V_N}{514} * \sqrt{\frac{G * T}{\Delta P * P_d}}$$

Kv: Flow coefficient

Q: Maximum flow volume, m³/h

W: Exact weight, kg/m³

ΔP: Pressure loss, bar

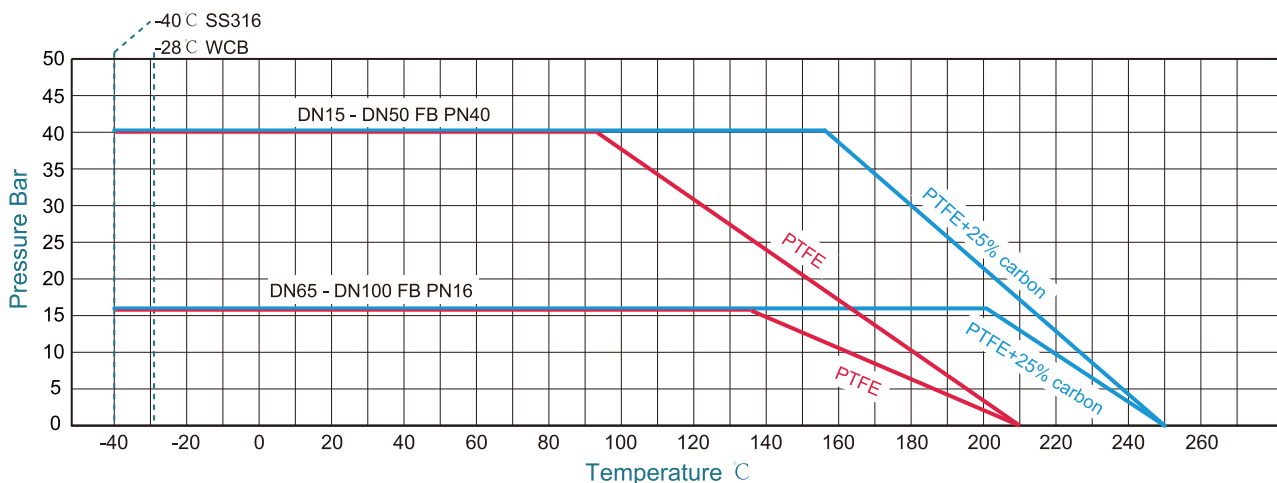
V_N: Maximum flow, Nm³/h

G: Exact weight, kg/Nm³

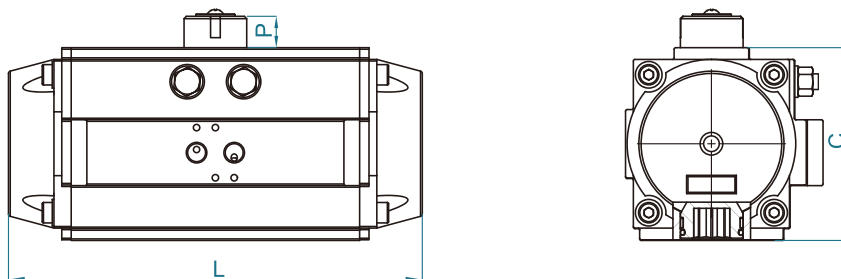
T: Absolute temperature, Kelvin

P_d: Absolute pressure downstream, bar

Pressure temperature curve



Sizing - Valve/Pneumatic actuator



Double acting sizing - Air supply 6bar

Fig.151				Sizing - Fig.540 Double acting / 6bar air supply						
INCH	DN	Torque /Nm	ISO5211	SIZE	Output torque /Nm	ISO5211	C /mm	P /mm	L /mm	[kg]
1/2"	15	8	F03+F04	40	14.3	F03+F05	60	20	110	1
3/4"	20	10	F03+F04	40	14.3	F03+F05	60	20	110	1
1"	25	12	F04+F05	50	21.6	F03+F05	70	20	154	1.13
1 1/4"	32	20	F04+F05	65	43.9	F03+F05	89	20	189	1.97
1 1/2"	40	32	F05+F07	75	68.2	F05+F07	100	20	210	2.93
2"	50	45	F05+F07	75	68.2	F05+F07	100	20	210	2.93
2 1/2"	65	80	F07+F10	85	100.1	F05+F07	113	20	229	3.78
3"	80	110	F07+F10	95	140.6	F05+F07	123	20	264	5.14
4"	100	150	F10+F12	125	327.4	F07+F10	161	30	337	10.86

1) Valve torque values given without safety.

Spring return sizing - Air supply 6bar

Fig.151				Sizing - Fig.541 Spring return / 6bar air supply							
INCH	DN	Torque /Nm	ISO5211	SIZE	Torque air /Nm 0° - 90°	Torque spring /Nm	ISO5211	C /mm	P /mm	L /mm	[kg]
1/2"	15	8	F03+F04	65 S10	26.5 - 17.7	26.2 - 17.4	F03+F05	89	20	189	2.21
3/4"	20	10	F03+F04	65 S10	26.5 - 17.7	26.2 - 17.4	F03+F05	89	20	189	2.21
1"	25	12	F04+F05	65 S10	26.5 - 17.7	26.2 - 17.4	F03+F05	89	20	189	2.21
1 1/4"	32	20	F04+F05	75 S12	42.5 - 27.7	40.4 - 25.7	F05+F07	100	20	210	3.29
1 1/2"	40	32	F05+F07	95 S12	87.6 - 57.0	83.6 - 53	F05+F07	123	20	264	5.86
2"	50	45	F05+F07	95 S12	87.6 - 57.0	83.6 - 53	F05+F07	123	20	264	5.86
2 1/2"	65	80	F07+F10	125 S12	205 - 134	193.3 - 122.4	F07+F10	161	30	337	12.54
3"	80	110	F07+F10	140 S12	285.5 - 189.3	293.6 - 197.4	F10+F12	178	30	377	15.93
4"	100	150	F10+F12	140 S12	285.5 - 189.3	293.6 - 197.4	F10+F12	178	30	377	15.93

1) Valve torque values given without safety.

Actuators and accessories

Pneumatic actuators

CE  SIL



Type:	Fig.540 double acting, Fig.541 spring return
Torque:	Max.12992Nm
Operating medium:	Dry or lubricated air, inert/non-corrosive gases
Air supply pressure:	2.5bar-8bar
Travel stop:	0°- 90°, adjustable +4° to -4°
Mounting details:	ISO 5211, Namur, VDI/VDE 3845
Body material:	Hard anodized aluminum alloy

Electrical actuators

CE 



Type:	Fig.550 standard Fig.550S spring return type
Torque:	10Nm and up
Ambient temperature:	-25 C ~ +65 C
Function:	ON/OFF, Modulating
Body material:	Hard anodized aluminum alloy

Pneumatic accessories



Position switch box:	Fig.561/561M standard type Fig.560/560B/560C Explosion-proof type
Solenoid valve:	Fig.570 standard type Fig.576 Explosion-proof type
Positioner:	Fig.585 Intelligent EP type Fig.586 Electrical-Pneumatic type
Air regulator:	Air regulator Filter/Regulator-Lubricator (F.R.L) Filter-Regulator-Lubricator (F.R.L)
Pneumatic fittings:	Push-in fittings Silencers

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