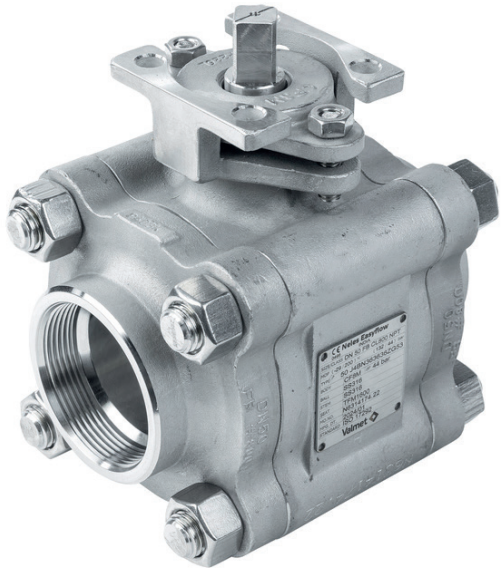
Neles Easyflow™ 3-piece ball valve
Series J4

J4 series screwed, socket and buttweld end seat supported ball valve provides long, reliable performance. Rugged three-piece body construction with dual seal body design withstands heavy piping loads and wide temperature fluctuations. A structurally rugged solid stainless steel mirror finished ball provides repeatable tight shutoff during valve life. An adjustable gland with spring loaded v-ring packing provide extremely long cycle life with minimum maintenance. Direct actuator mounting capability makes it easy to automate with accurate alignment, ensuring long cycle life. Complete package reliability and single source responsibility with actuators, switches, and intelligent valve controllers. Cavity fill option for the J4 series ensure lowest possible dead volume in the ball cavity between the seats.



Technical description

- Sizes DN15 to 50 (NPS 1/2 to 2)
- ASME Class 800
- Three-piece body construction
- Live-loaded stem packing
- Bi-directional bubble-tight shut-off
- Suitable for vacuum service

Features

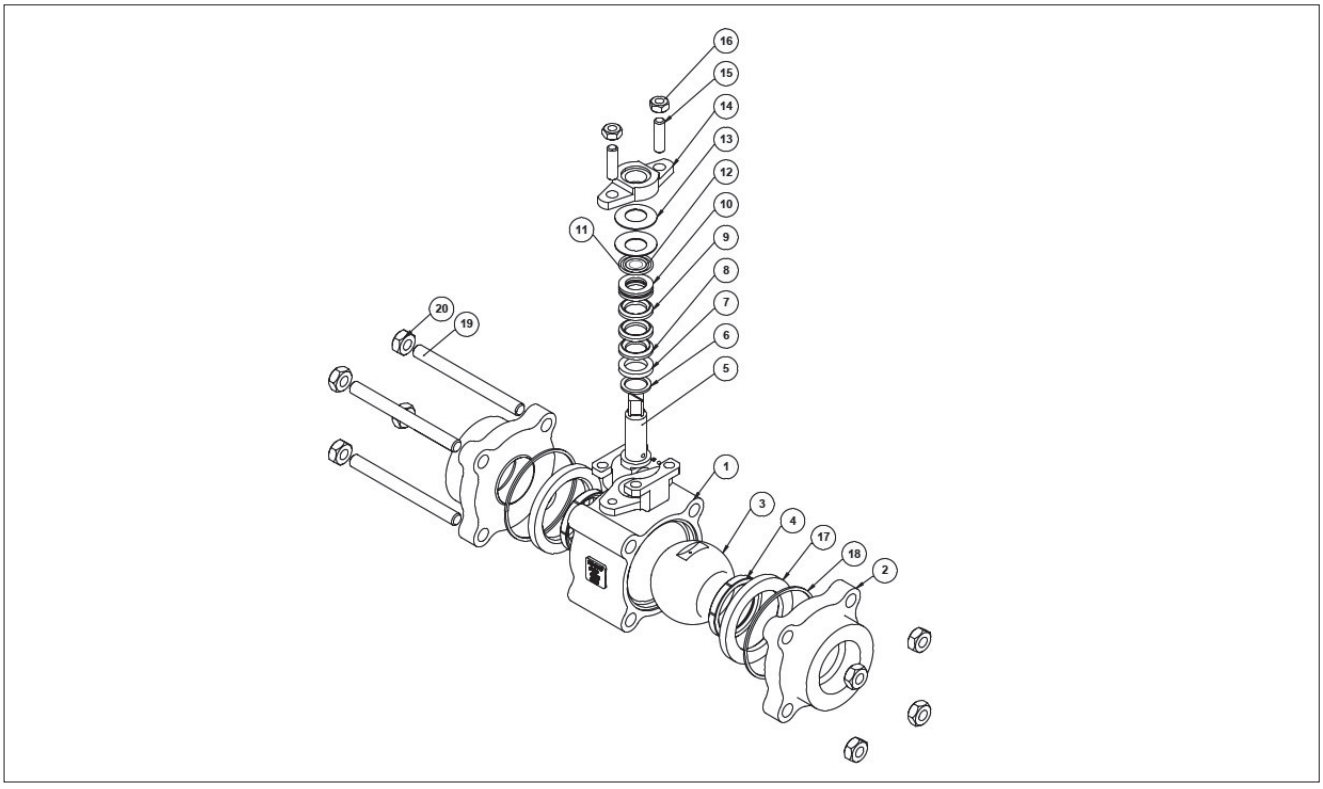
- Unique low torque seat design maintains tight shut-off through pressure and temperature cycles is standard
- Rugged 3-piece body construction enables repair of valve without disconnecting from the pipeline
- ISO 5211 mounting pad for direct mounting of handle, gear operator, manual override, or actuator
- Internal entry blow-out proof stem design
- One piece structurally rugged solid mirror finished ball
- Adjustable spring loaded stem seal provides long cycle life and low emissions with minimal maintenance
- An extremely tight fit drive between the stem and ball ensures accurate and repeatable shut-off and control
- Anti-static grounding between ball and stem as well as stem and body
- Available with lockable handle
- Cavity fill option minimizes media trapped in the cavity between the seats when the valve is open
- Every valve is factory tested, serialised & quality tagged prior to shipment
- Screwed end valves are clearly marked to identify between BSP & NPT threads
- CE marked for the European Pressure Equipment Directive (PED) 2014/68/EU as standard
- SIL-3 qualified

Applications

- Chemical and petrochemicals
- Pulp & paper
- Food and beverage
- Water & wastewater
- Pharmaceutical
- HVAC
- Mining

Exploded view and parts list

DN15 to DN50 three-piece body construction



Bill of material and parts list			
Part no.	Part name	Material	
		Carbon steel	Stainless steel
		-22	-36
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
2	End piece	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M*
3	Ball	316 Stainless steel	
4	Seat	TFM™ 1600	
5	Stem	316 Stainless steel	
6	Stem washer	Carbon filled PTFE	
7	Stem seal	Graphite	
8	Stem retainer 1	Glass filled PTFE	
9	V-ring stem seal	TFM™ 1600	
10	Stem retainer 2	Glass filled PTFE	
11	Outer stem O-ring	Fluoroelastomer (FKM)	
12	Inner stem O-ring	Fluoroelastomer (FKM)	
13	Disc spring	Spring steel	
14	Gland flange	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
15	Gland stud	ASTM A193 Gr. B7	ASTM A193 Gr. B8M
16	Gland nut	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M
17	Seat retainer	Stainless steel	
18	Body gasket	Graphite	
19	Body stud	ASTM A193 Gr. B7	ASTM A193 Gr. B8M
20	Body nut	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M

*End pieces are dual certified with CF3M for weld end valves

Technical specifications

Nominal diameter:	DN15 – DN50 (NPS 1/2 – 2)
Pressure rating:	ASME Class 800
Valve ends:	ASME B16.11 (Screwed and socket weld ends) ASME B16.25 (Buttweld ends)
End to end:	Manufacturer standard
Vacuum rating:	29.91 inch Hg gauge (759.98 mm Hg gauge or $2x10^{-2}$ Torr or $4x10^{-4}$ psia or 99.99% vacuum)
Leakage:	No visible leakage
Standards followed:	ISO 17292, ASME B16.34, API 598, BS EN 12266
Testing:	API 598
Safety level:	SIL-3 capable

Flow data

The table at right provides flow coefficients for J4 series valves covered in this bulletin. Cv values represent the flow of water at +60°F through the valve in US gallons per minute at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at +16°C through the valve in cubic meters per hour at a pressure drop of 1 bar.

Cv = 1.167 Kv

Valve size		Reduced bore (J4A)		Full bore (J4B)	
DN	NPS	C_v	K_v	C_v	K_v
15	½	13	11	13	11
20	¾	33	29	40	35
25	1	44	38	65	56
32	1.¼	46	40	90	78
40	1.½	95	82	135	117
50	2	111	96	261	226

Valve body ratings

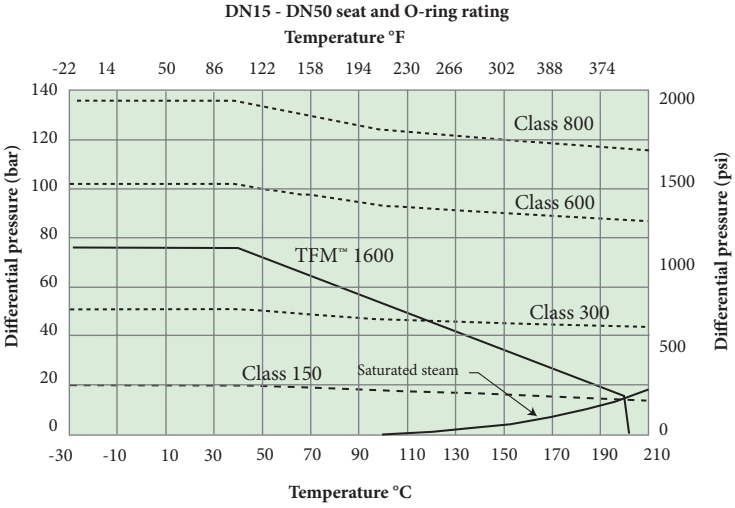
These are the maximum working pressure ratings of the valve body. The seat ratings, shown below, determine the practical temperature and pressure limitations according to actual service conditions. Test pressures are recommended pressures for hydrostatic test with the valve ball half open.

Temperature °C	Class 800 Maximum working pressure, barg	
	Carbon steel WCB	Stainless steel CF8M
-29 to 38	136	132
100	124	113
150	120	103
200	117	95
250	112	89
Test pressure	204	198

Temperature °F	Class 800 Maximum working pressure, psig	
	Carbon steel WCB	Stainless steel CF8M
-20 to 100	1973	1920
200	1800	1653
300	1747	1493
400	1693	1373
500	1613	1280
Test pressure	2960	2880

Valve seat ratings

Seat ratings, indicated by solid line in the chart, are based on differential pressure with the valve ball in the fully closed position. The dotted lines indicate the maximum working pressures for WCB carbon steel valve bodies. The combination of dotted and solid lines indicates the maximum valve rating at specific pressure and temperature conditions. Carbon steel valves are rated to -29°C (-20°F). Low temperature limit for TFM™/Devlon® seat and body seal O-ring is -30°C (-22°F).



Valve torque data

Use this torque chart as a guide for actuator selection. The recommended minimum actuator torque includes a safety factor, so it is suitable for difficult services such as slurries, semi-solids and non-lubricating media.

Valve size		Minimum actuator torque for TFM™ seat			
		Reduced bore (J4A)		Full bore (J4B)	
DN	NPS	N.m	lb-ft	N.m	lb-ft
15	1/2	11	15	11	15
20	3/4	14	19	14	19
25	1	17	23	18	24
32	1.1/4	35	47	36	49
40	1.1/2	42	57	46	62
50	2	54	73	65	88

Actuator selection

Selected rack and pinion actuator sizes in the chart are based on the recommended minimum actuator torque and 4 barg minimum air supply pressure. Selected spring return actuator size is suitable for fail open or fail close configuration. Unless otherwise specified, actuator will be set for fail close.

Actuators may be direct mounted or direct mounted with sleeve or mounted using bracket & coupler.

For all these cases, the mounting sets include respective fasteners in addition to the above said components.

Valve size		TFM™ seat			
		Actuator, 4 barg min. air supply			
DN	NPS	Full bore		Reduced bore	
		RNP DA	RNP SR	RNP DA	RNP SR
15	1/2	RNP 40	RNP 63 SR40	RNP 40	RNP 63 SR40
20	3/4	RNP 40	RNP 63 SR40	RNP 40	RNP 63 SR40
25	1	RNP 50	RNP 80 SR40	RNP 50	RNP 80 SR40
32	1 1/4	RNP 63	RNP 90 SR40	RNP 63	RNP 90 SR40
40	1 1/2	RNP 80	RNP 100 SR40	RNP 80	RNP 100 SR40
50	2	RNP 90	RNP 110 SR40	RNP 80	RNP 110 SR40

Hand levers

Valve size		Flow bore	Hand lever code	Mounting set number
DN	NPS	J4A		
15	½	Reduced bore	RHL 0815036	EASYFLOW MOUNTING SET 69
20	¾	Reduced bore	RHL 0815036	EASYFLOW MOUNTING SET 69
25	1	Reduced bore	RHL 0915036	EASYFLOW MOUNTING SET 69
32	1.¼	Reduced bore	RHL 0915036	EASYFLOW MOUNTING SET 69
40	1.½	Reduced bore	RHL 0915036	EASYFLOW MOUNTING SET 69
50	2	Reduced bore	RHL 1115036	EASYFLOW MOUNTING SET 70

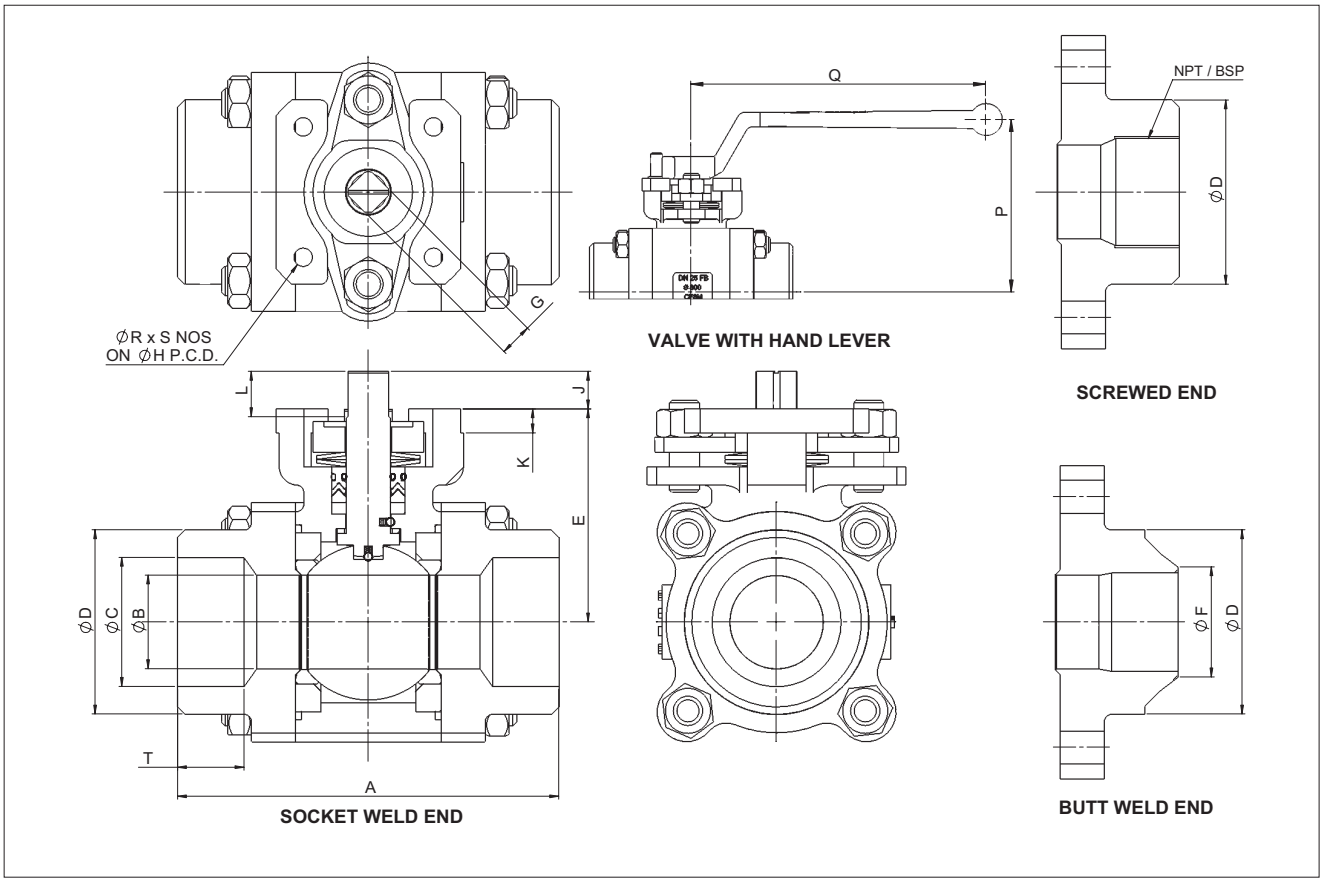
Valve size		Flow bore	Hand lever code	Mounting set number
DN	NPS	J4B		
15	½	Full bore	RHL 0815036	EASYFLOW MOUNTING SET 69
20	¾	Full bore	RHL 0915036	EASYFLOW MOUNTING SET 69
25	1	Full bore	RHL 0915036	EASYFLOW MOUNTING SET 69
32	1.¼	Full bore	RHL 0915036	EASYFLOW MOUNTING SET 69
40	1.½	Full bore	RHL 1115036	EASYFLOW MOUNTING SET 70
50	2	Full bore	RHL 1420036	EASYFLOW MOUNTING SET 71

Actuator mounting set

Reduced bore (J4A)		
Valve size	Actuator model	Mounting set number
DN15 (1/2)	RNP 40	EASYFLOW MOUNTING SET 78
	RNP 50	EASYFLOW MOUNTING SET 78
	RNP 63	EASYFLOW MOUNTING SET 40
	RNP 80	EASYFLOW MOUNTING SET 56
DN20 (3/4)	RNP 40	EASYFLOW MOUNTING SET 78
	RNP 63	EASYFLOW MOUNTING SET 40
	RNP 80	EASYFLOW MOUNTING SET 56
DN25 (1)	RNP 50	EASYFLOW MOUNTING SET 12
	RNP 63	EASYFLOW MOUNTING SET 13
	RNP 80	EASYFLOW MOUNTING SET 79
	RNP 90	EASYFLOW MOUNTING SET 79
DN32 (1 1/4)	RNP 63	EASYFLOW MOUNTING SET 41
	RNP 80	EASYFLOW MOUNTING SET 34
	RNP 90	EASYFLOW MOUNTING SET 34
	RNP 110	EASYFLOW MOUNTING SET 55
DN40 (1 1/2)	RNP 80	EASYFLOW MOUNTING SET 34
	RNP 90	EASYFLOW MOUNTING SET 34
	RNP 100	EASYFLOW MOUNTING SET 55
	RNP 110	EASYFLOW MOUNTING SET 55
DN50 (2)	RNP 80	EASYFLOW MOUNTING SET 31
	RNP 90	EASYFLOW MOUNTING SET 31
	RNP 110	EASYFLOW MOUNTING SET 80
	RNP 125	EASYFLOW MOUNTING SET 58

Full bore (J4B)		
Valve size	Actuator model	Mounting set number
DN15 (1/2)	RNP 40	EASYFLOW MOUNTING SET 78
	RNP 50	EASYFLOW MOUNTING SET 78
	RNP 63	EASYFLOW MOUNTING SET 40
	RNP 80	EASYFLOW MOUNTING SET 56
DN20 (3/4)	RNP 40	EASYFLOW MOUNTING SET 12
	RNP 63	EASYFLOW MOUNTING SET 13
	RNP 80	EASYFLOW MOUNTING SET 79
DN25 (1)	RNP 50	EASYFLOW MOUNTING SET 53
	RNP 63	EASYFLOW MOUNTING SET 41
	RNP 80	EASYFLOW MOUNTING SET 34
	RNP 90	EASYFLOW MOUNTING SET 34
DN32 (1 1/4)	RNP 63	EASYFLOW MOUNTING SET 41
	RNP 80	EASYFLOW MOUNTING SET 34
	RNP 90	EASYFLOW MOUNTING SET 34
	RNP 110	EASYFLOW MOUNTING SET 55
DN40 (1 1/2)	RNP 80	EASYFLOW MOUNTING SET 31
	RNP 90	EASYFLOW MOUNTING SET 31
	RNP 100	EASYFLOW MOUNTING SET 80
	RNP 125	EASYFLOW MOUNTING SET 58
DN50 (2)	RNP 90	EASYFLOW MOUNTING SET 15
	RNP 100	EASYFLOW MOUNTING SET 16
	RNP 110	EASYFLOW MOUNTING SET 16
	RNP 150	EASYFLOW MOUNTING SET 81

Dimensions



J4A Class 800 reduced bore

Valve size		A	ØB	ØC	ØD	ØF	T	E	K	L	J	G	ØH	ISO 5211	ØR	S	P	Q	Weight (kg)
DN	NPS																		
15	½	72	12.8	22	35	16	10	38.3	5	5	1	8	50	F05	M6*	4	68	150	0.7
20	¾	72	12.8	28	35	21	13	38.3	5	5	1	8	50	F05	M6*	4	68	150	0.7
25	1	90	19.1	34	41	26.7	13	52.5	6.5	10.5	8.5	9	50	F05	M6*	4	81	150	1.2
32	1.¼	103	25.4	43	50	35.1	13	57.8	6.5	12	10	9	50	F05	M6*	4	85	150	2
40	1.½	114	31.8	49	61.5	41	13	65.1	6.5	12	10	9	50	F05	M6*	4	95	150	3
50	2	132	38.1	61	71	52.5	16	77.7	6	17	15.3	11	50	F05	Ø8	4	106	150	4

* With tapped holes
All dimensions are in mm.

J4B Class 800 full bore

Valve size		A	ØB	ØC	ØD	ØF	T	E	K	L	J	G	ØH	ISO 5211	ØR	S	P	Q	Weight (kg)
DN	NPS																		
15	½	72	12.8	22	35	16	10	38.3	5	5	1	8	50	F05	M6*	4	68	150	0.8
20	¾	90	19.1	28	41	21	13	52.5	6.5	10.5	8.5	9	50	F05	M6*	4	81	150	1.4
25	1	103	25.4	34	50	26.7	13	57.8	6.5	12	10	9	50	F05	M6*	4	85	150	2
32	1.¼	114	32	43	61.5	35.1	13	65.1	6.5	12	10	9	50	F05	M6*	4	95	150	3.1
40	1.½	132	38.1	49	71	41	13	77.7	6	17	15.3	11	50	F05	Ø8	4	106	150	4.5
50	2	144	50.8	61	71	52.5	16	96	6	21.5	18.2	14	50	F07	Ø9	4	137	200	6.8

* With tapped holes
All dimensions are in mm.

How to order

1.		2.	3.	4.	5.	6.	7.	8.	9.	10.
50		J4	B	N	22	36	36	ZG	53	

1.	Size, DN (NPS ref.)
15	15 (1/2)
20	20 (3/4)
25	25 (1)
32	32 (1 1/4)
40	40 (1 1/2)
50	50 (2)

2.	Series
J4	

3.	Flow bore
A	Reduced bore
B	Full bore

4.	End connection
N	NPT
B	BSP (Parallel)
S	Socket weld end
T	Butt weld end Sch. 40 or 40S as applicable

5.	Body material
22	Carbon steel (WCB)
36	Stainless steel (CF8M)*

* End pieces are dual certified with CF3M for weld end valves

6.	Ball material
36	316 Stainless steel

7.	Stem material
36	316 Stainless steel
43	17-4PH Stainless steel

8.	Seat and seal materials
ZG	TFM™ 1600 / Graphite

9.	O-Ring material
53	Fluoroelastomer (FKM)

10.	Options
	Blank, standard option
Q	Cavity filler seat

TFM™ is a trademark of Dyneon, a 3M Company

NOTE:
As the use of the valve is application specific, a number of factors should be taken into account when selecting a valve for a given application.
Therefore, some of the applications in which the valves are used are outside the scope of this document.
If you have any questions concerning the use, application or compatibility of the valve with the intended service,
contact nearest Valmet sales office for more information.

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