LPH17–
Eccentric Rotary Control Valve

LAPAR

Code	Actuator	Action	Air Fail Position	Control	Structure	Body Material	Sealing Material	Ball Material	Connection	DN	PN
LPH17-	1 Pneumatic	D Double-acting	1 Normally Open	A On-off	5 One-piece	A CF3M	P PTFE	A CF3M	1 Flange		
	2 Pneumatic & Handwheel	S Single-acting	2 Normally Closed	B Control	6 Two-pieces	B CF8M	Q TFM1600	B CF8M	2 Wafer		
	3 Electric DC24V	0 Others	3 Flexible	C Intelligent	7 Three-piece	C CF8	T EK	C CF8	0 Others		
	4 Electric AC220V		4 Held	0 Others	0 Others	D WCB	W PEEK	I CF3			
	5 Electric AC380V		0 Others			I CF3	2 PE	L CE3MN			
	7 Handle					L CE3MN	5 TFM4215	2 Ti			
	8 Turbine					2 Ti	7 RTFE	3 Gr			
	9 Hydraulic pressure					5 WCC	0 Others	0 Others			
	0 Others					0 Others					

Overview

Pneumatic eccentric rotary valve (CAM flexure regulating valve) is composed of pneumatic or electric actuator and eccentric rotary plug valve. It is a angle stroke regulating valve that is controlled by the eccentric axis around the center of the ball valve to control the fluid.

The rotary center of the valve core is not concentric on the rotating shaft. It can reduce the wear and prolong the service life. There is a flap in the back of the valve core, which is beneficial to the steady flow of the fluid and has good stability. Comparing to globe valves, the body is compact, light weight, and yet it has large Cv value and large rangeability.

It is widely used in petroleum, chemical, electric power, metallurgy, iron and steel, paper making, medicine, food, textile, light industry and other industries.

Specifications

■ Body

Type	Eccentric Rotary Plug Valve
Norminal Size	25、40、50、65、80、100、125、150、200、250、300mm
Pressure Rating	PN1.6、4.0、6.4MPa （PN6.4MPa for DN25～150 only）
Connection	Flange, Wafer
Material	Cast Steel
Bonnet	Holistic with body, -45～+400℃
Bonnet Type	Bolt Bonnet
Packing	V-PTFE, PPL, Graphite

■ Trim

Trim Type	Eccentric Rotary Plug with Flap
Characteristics	Approximate Linear
Travel	Rotary 60°

■ Actuator

Actuator Type	Pneumatic Piston Actuator, Electric Actuator, Pneumatic Diaphragm Actuator
Air Supply	400～700KPa
Air Connection	G1/4", G1/8", G3/8", G1/2"
Temperature	-30～+70℃

■ Accessories

Positioner, Air Filter Regulator, Retaining Valve, Limit Switch, Position Transmitter, Handwheel

■ Performance

Hysteresis Error	Less than 1% of full travel with positioner,
Intrinsic Error	Less than ±2% of full travel with positioner
Leakage Class	ANSI Class IV for Metal Seat, ANSI Class VI for Soft Seat
Rangeability(R)	100：1

■ Rated Cv

		25	40	50	65	80	100	125	150	200	250	300
Metal Seat	Full Bore	14	30	50	100	135	230	320	500	850	1300	1750
	60% RB	–	–	–	–	–	–	–	300	510	780	1050
	40% RB	6	12	20	40	54	92	128	200	340	520	700
Soft Seat Full Bore		14	30	50	85	120	195	290	480	800	1150	1550

■ Body Pressure and Temperature Limitations

DIN Unit:MPa

Temp ℃	PN16	PN40	PN63	PN100	Temp ℃	PN16	PN40	PN63	PN100
	ZG230–450					ZG1Cr18Ni9			
–5～200	1.60	4.00	6.30	10.00	–45～200	1.60	4.00	6.30	10.00
250	1.40	3.50	5.40	9.00	～300	1.40	3.50	5.40	9.00
300	1.20	3.00	4.80	7.50	～400	1.20	3.00	4.80	7.50
350	1.10	2.60	4.00	6.60					
400	0.90	2.30	3.70	5.80					

JIS Unit: MPa

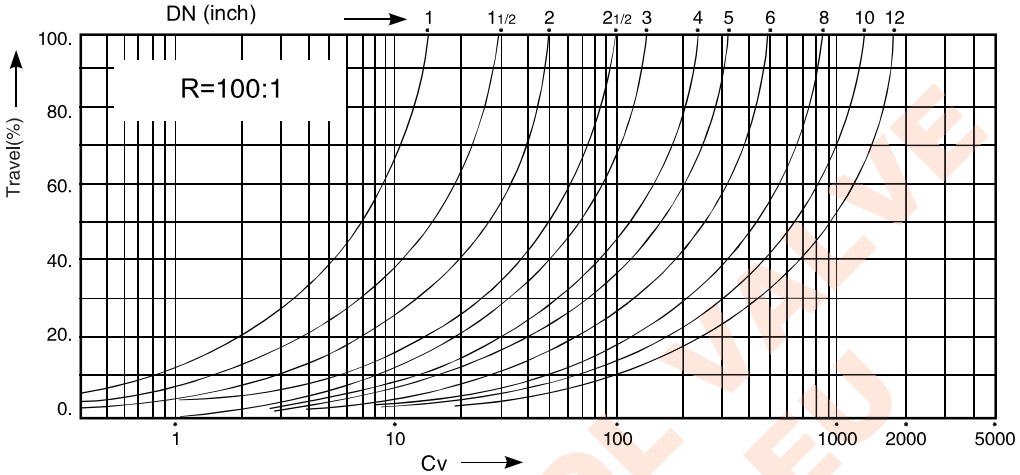
Temp ℃	10K	20K	30K	40K
	SCPH2	SCPH2	SCPH2	SCPH2
–5～120	1.37	3.33	4.99	6.66
220	1.17	3.03	4.50	6.07
300	0.98	2.84	4.21	5.58
350		2.54	3.82	5.09
400		2.25	3.33	4.50

ANSI Unit: MPa

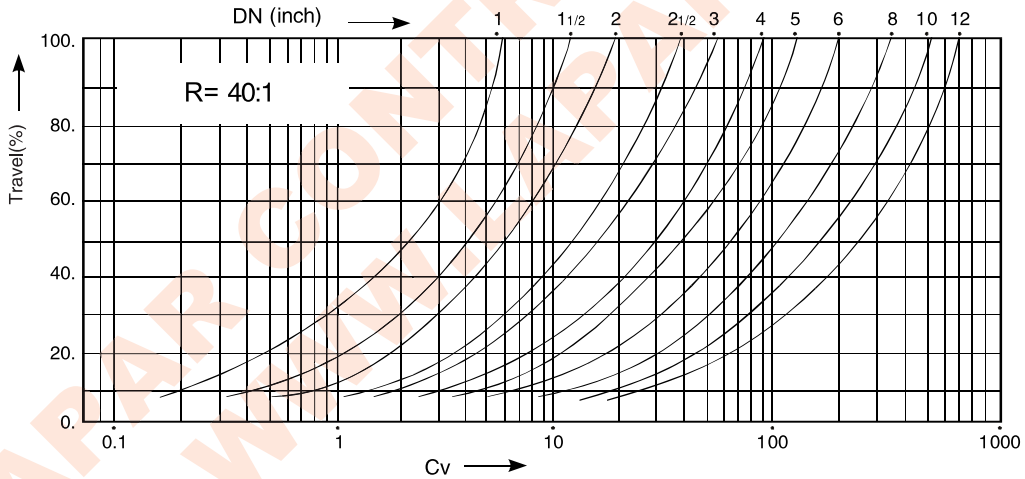
Temp ℃	150Lb			300Lb			600Lb		
	SCPH2	SCS13A	SCS14A	SCPH2	SCS13A	SCS14A	SCPH2	SCS13A	SCS14A
	WCB	CF8	CF8M	WCB	CF8	CF8M	WCB	CF8	CF8M
–196～38	–	1.90	1.90	–	4.95	4.95	–	9.91	9.92
–45～38	1.84	1.90	1.90	–	4.95	4.95	–	9.91	9.92
–5～38	1.84	1.90	1.90	5.10	4.95	4.95	10.20	9.91	9.92
50	1.81	1.84	1.84	5.00	4.77	4.80	10.01	9.56	9.62
100	1.72	1.56	1.61	4.63	4.08	4.21	9.27	8.17	8.43
150	1.57	1.39	1.47	4.51	3.62	3.85	9.04	7.26	7.69
200	1.40	1.25	1.37	4.38	3.27	3.56	8.75	6.54	7.12
250	1.20	1.16	1.20	4.16	3.04	3.34	8.33	6.1	6.67
300	1.01	1.01	1.01	3.87	2.91	3.15	7.74	5.8	6.32
350	0.84	0.84	0.84	3.69	2.81	3.03	7.38	5.6	6.07
375	0.73	0.73	0.73	3.64	2.77	2.96	7.28	5.54	5.93
400	0.64	0.64	0.64	3.44	2.74	2.91	6.89	5.48	5.81

■ Flow Characteristics

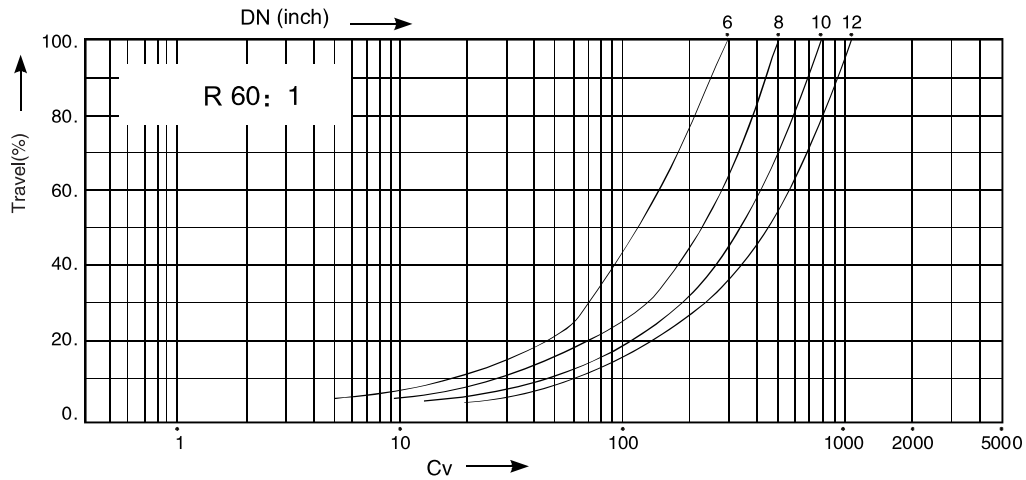
Metal Seat: Full Bore



Metal Seat：40% Reduced Bore



Metal Seat：60% Reduced Bore



■ Standard Construction Materials and Temperature limitations

- R.TFE(F): Molybdenum Dioxide reinforced Polytetrafluoroethylene
- R.TFE(C): Carbon Fiber reinforced Polytetrafluoroethylene
- HCr : Hard Chromium Plating
- S.S : Partial surfacing Stellite Alloy
- PH : Precipitation hardening heat treatment

Body Material		WCB, Carbon Steel				
Plug	Material	304、316	304、316	304、316	304、316	304、316
	Treatment	HCr	HCr	HCr	S.S	S.S
Stem	Material	17–4PH	17–4PH	17–4PH	17–4PH	17–4PH
	Treatment	PH	PH	PH	PH	PH
Bearing	Material	316	316	316	316	316
	Treatment	HCr	HCr	HCr	HCr	HCr
Gasket	Material	316	316	316	316	316
Sealing Ring	Treatment	FN	FV	CS	H	HS
	Material	R.TFE(F)	R.TFE(F)	R.TFE(C)	316	316
	Treatment	–	–	–	PH	S.S
Backing Ring	Material	NBR O -ring	VITON O -ring	316	–	–
Leakage Class		VI	VI	Cv×0.000001%	IV	IV
Temperautre ℃	ZG230–450	–5～+60	–5～+180	–5～+250	–5～+400	–5～+400
	ZG1Cr18Ni9Ti	–45～+60	–10～+180	–45～+250	–45～+400	–45～+400

Body		Stainless Steel			
Plug	Material	316	316	316	316
	Treatment	HCr	HCr	HCr	S.S
Stem	Material	316	316	316	316
	Treatment	–	–	–	–
Bearing	Material	316	316	316	316
	Treatment	HCr	HCr	HCr	HCr
Gasket	Material	316	316	316	316
Backing Ring	Treatment	FN	FV	CS	HS
	Material	R.TFE(F)	R.TFE(F)	R.TFE(C)	316
	Treatment	*	–	–	S.S
Backing Ring	Material	NBR O -ring	VITON O -ring	316	–
Leakage Class		VI	VI	Cv×0.000001%	IV
Temperature ℃		–45～+60	–10～+180	–45～+250	–45～+400

■ Sealing Ring Pressure and Temperature Limitations

—— Pressure Limitation at valve closing

—— Pressure drop at control

Chart 1–1 FV Type · FN Type

Leakage: ANSI Class VI

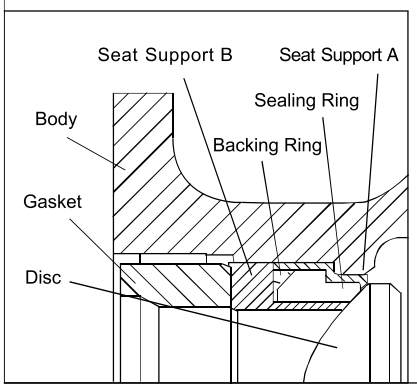


Chart 1–1-A FV Type

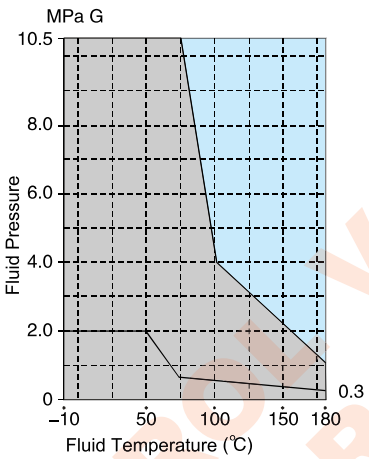


Chart 1–1-B FV Type

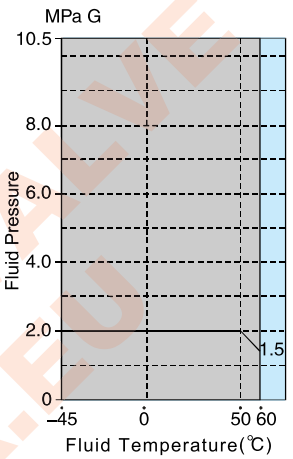
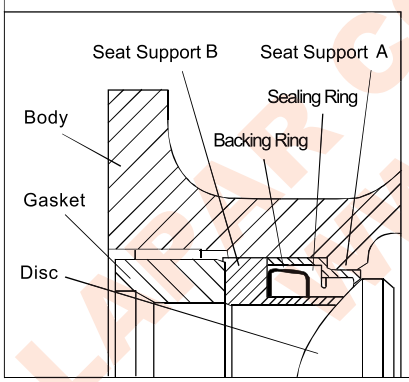


Chart 1–2 CS Type

Leakage: Cv x 0.000001%



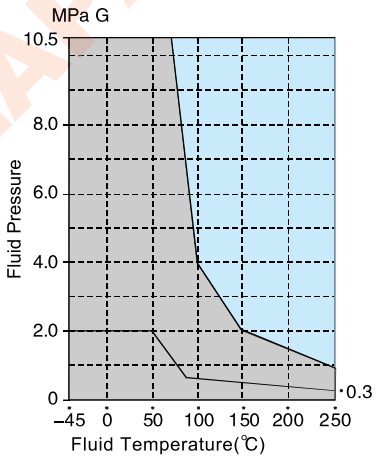
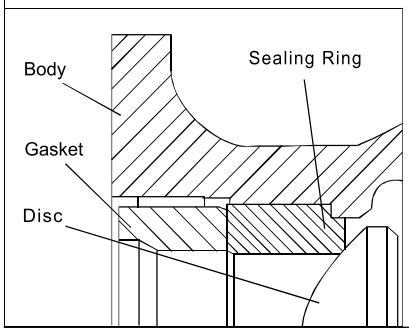
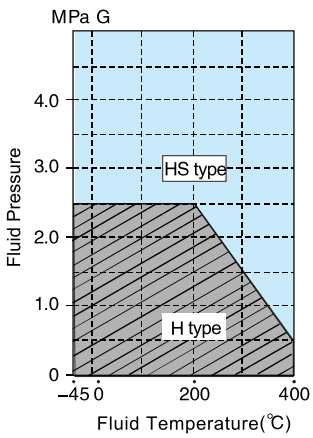


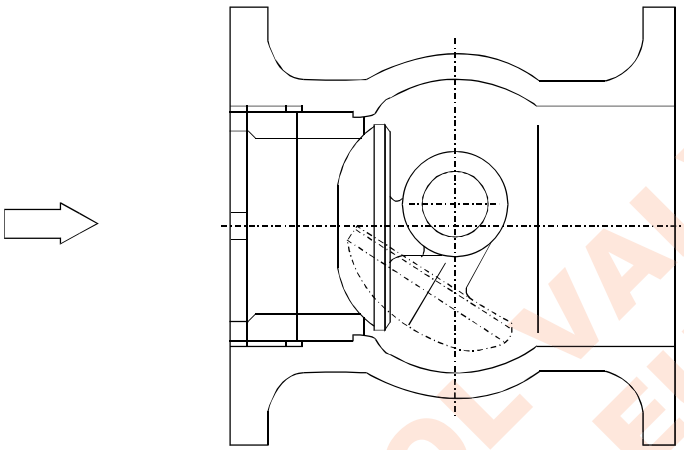
Chart 1–3 H Type · HS Type

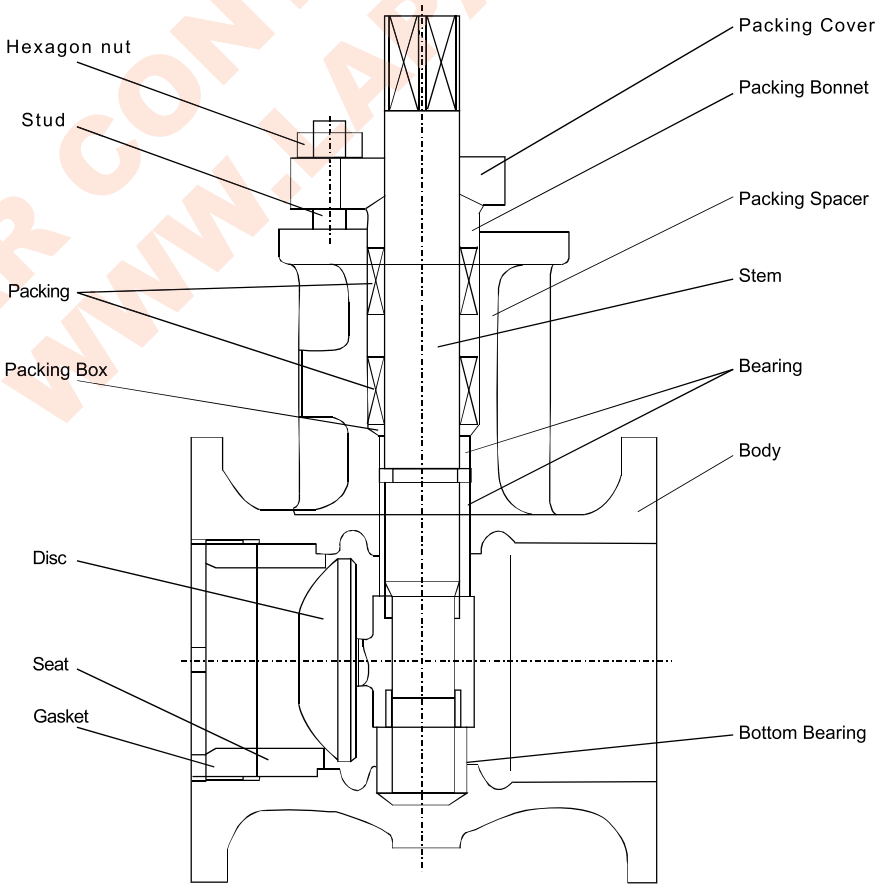
Leakage: ANSI Class IV





■ Constructures





■ Torque

Valve Size	Minimum Torque	
	lb.ft	m.N
1" (DN 25	60	81
1 1/2" (DN 4	95	130
2" (DN 50	100	135
3" (DN 80)	290	395
4" (DN 100)	363	490
6" (DN 150)	825	1120
8" (DN 200)	975	1320
10" (DN 250)	1350	1830
12" (DN 300)	2250	3050

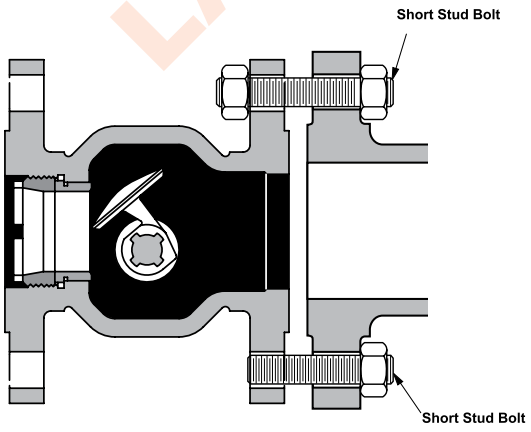
Valve Size	Tightening Torque	
	lb.ft	m.N
1" (DN 25)	74	100
1 1/2" (DN 40)	81	110
2" (DN 50)	100	135
3" (DN 80)	220	295
4" (DN 100)	363	490
6" (DN 150)	780	1050
8" (DN 200)	975	1320
10" (DN 250)	1320	1830
12" (DN 300)	2250	3050

■ Face to Face Length

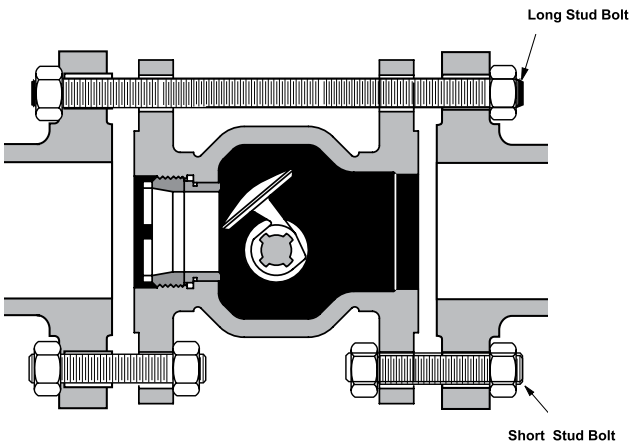
Unit: mm

DN		25	40	50	65	80	100	125	150	200	250	300
Metal Seat	150-300#	102	114	124	165	165	194	229	229	243	297	338
	600#	102	114	124	195	195	194	194	229	297	338	400
	900#	124	165	194	229	229	243	338	338	400	400	457
Wafer 150-300#		102	114	124	165	165	194	229	229	243	338	400

■ Flanges, Bolts and Nuts for Wafer Connection



Flange Connection



Wafer Connetion

ANSI Standard Wafer Connection

DN	Class 150				Class 300				Class 600			
	Size	b	Bolt	Nut	Size	b	Bolt	Nut	Size	b	Bolt	Nut
25	M14x185	30	4	8	M16x195	35	4	8	M18x210	40	4	8
40	M14x200	30	4	8	M20x225	40	4	8	M20x235	40	4	8
50	M16x225	35	4	8	M16x230 M16x95	40	7 2	14 2	M18x250 M18x105	40	7 2	14 2
80	M18x270	35	4	8	M18x285 M18x110	40	7 2	14 2	M20x310 M20x115	40	7 2	14 2
100	M18x305 M18x105	40	7 2	14 2	M20x305 M20x130	40	7 2	14 2	M22x335 M22x130	45	7 2	14 2
150	M20x305 M20x120	40	7 2	14 2	M20x370 M20x130	45	11 2	22 2	M27x420 M27x165	50	11 2	22 2
200	M20x270 M20x105	40	6 4	12 4	M24x400 M24x125	50 45	10 4	20 4	M30x450 M30x150	50 45	10 4	20 4
250	M22x435 M22x110	40	8 8	16 8	M27x475 M27x130	50 45	12 8	24 4	M33x535 M33x165	65 45	12 8	24 8
300	M22x470 M22x110	40	8 8	16 8	M30x530 M30x140	65 45	12 8	24 8	M33x580 M33x165	65 50	16 8	32 8

DIN Standard Wafer Connection

DN	PN16				PN40				PN64			
	Size	b	Bolt	Nut	Size	b	Bolt	Nut	Size	b	Bolt	Nut
25	M12x180	30	4	8	M12x180	35	4	8	M18x210	35	4	8
40	M16x200	35	4	8	M16x205	35	4	8	M20x235	40	4	8
50	M16x215	35	4	8	M16x225 M16x95	35	3 2	6 2	M18x250 M18x105	40	3 2	6 2
80	M16x260 M16x95	35	7 2	14 2	M16x265 M16x95	40	7 2	14 2	M20x310 M20x115	40	7 2	14 2
100	M16x290 M16x95	40	7 2	14 2	M20x305 M20x110	40	7 2	14 2	M22x335 M22x130	45	7 2	14 2
150	M20x340 M20x120	40	7 2	14 2	M22x335 M22x130	45	7 2	14 2	M27x420 M27x165	50	10 4	20 4
200	M20x360 M20x105	40	10 4	20 4	M24x395 M24x125	50 45	10 4	20 4	M30x450 M30x150	55 45	10 4	20 4
250	M22x435 M22x110	40	8 8	16 8	M27x465 M27x130	50 45	8 8	16 8	M33x535 M33x165	65 45	8 8	16 8
300	M22x470 M22x110	45	8 8	16 8	M30x520 M30x140	65 45	12 8	24 8	M33x580 M33x165	65 50	16 8	24 8

All short bolts used with long bolts are stud bolts.