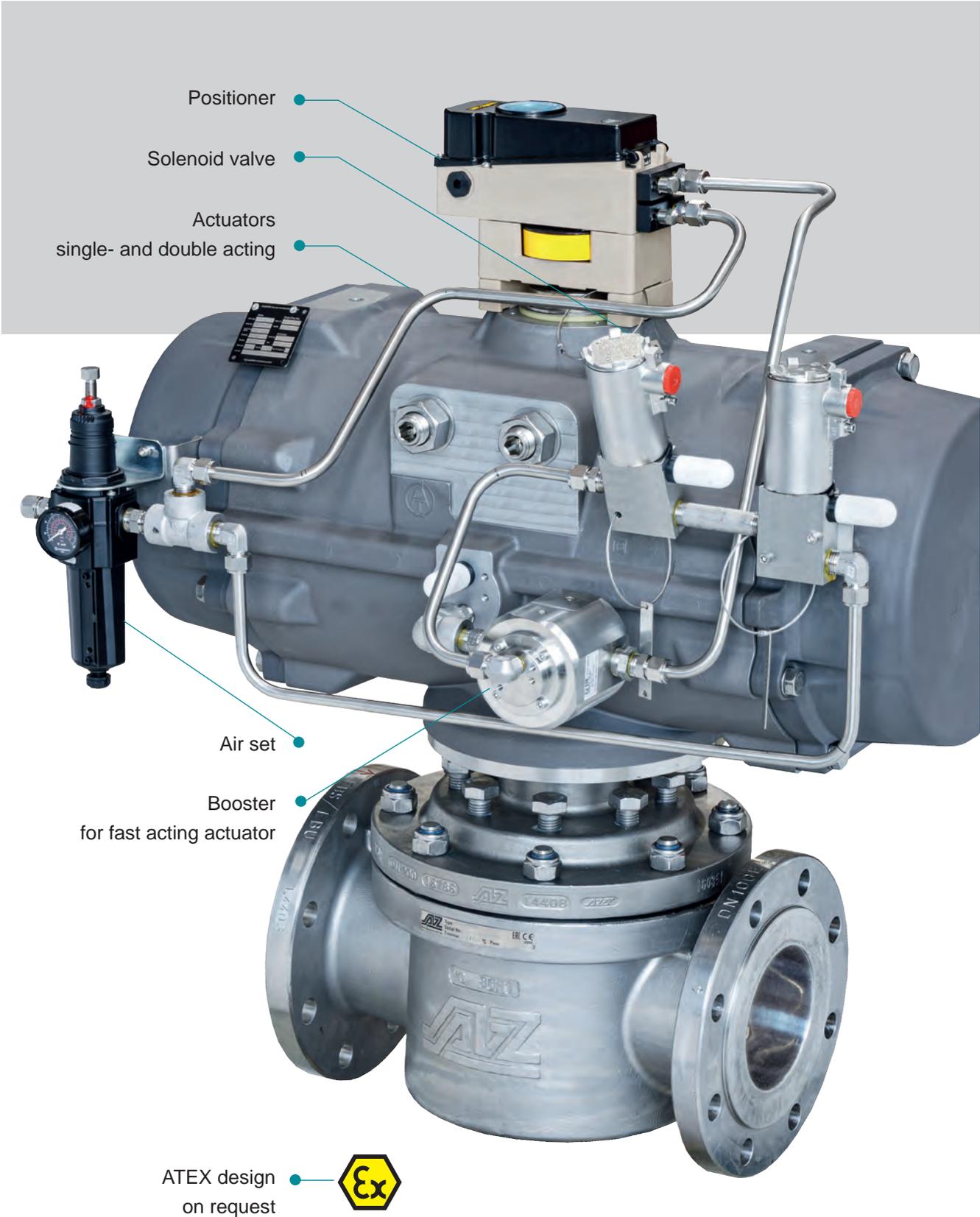


Actuation with verified and tested components for precise control



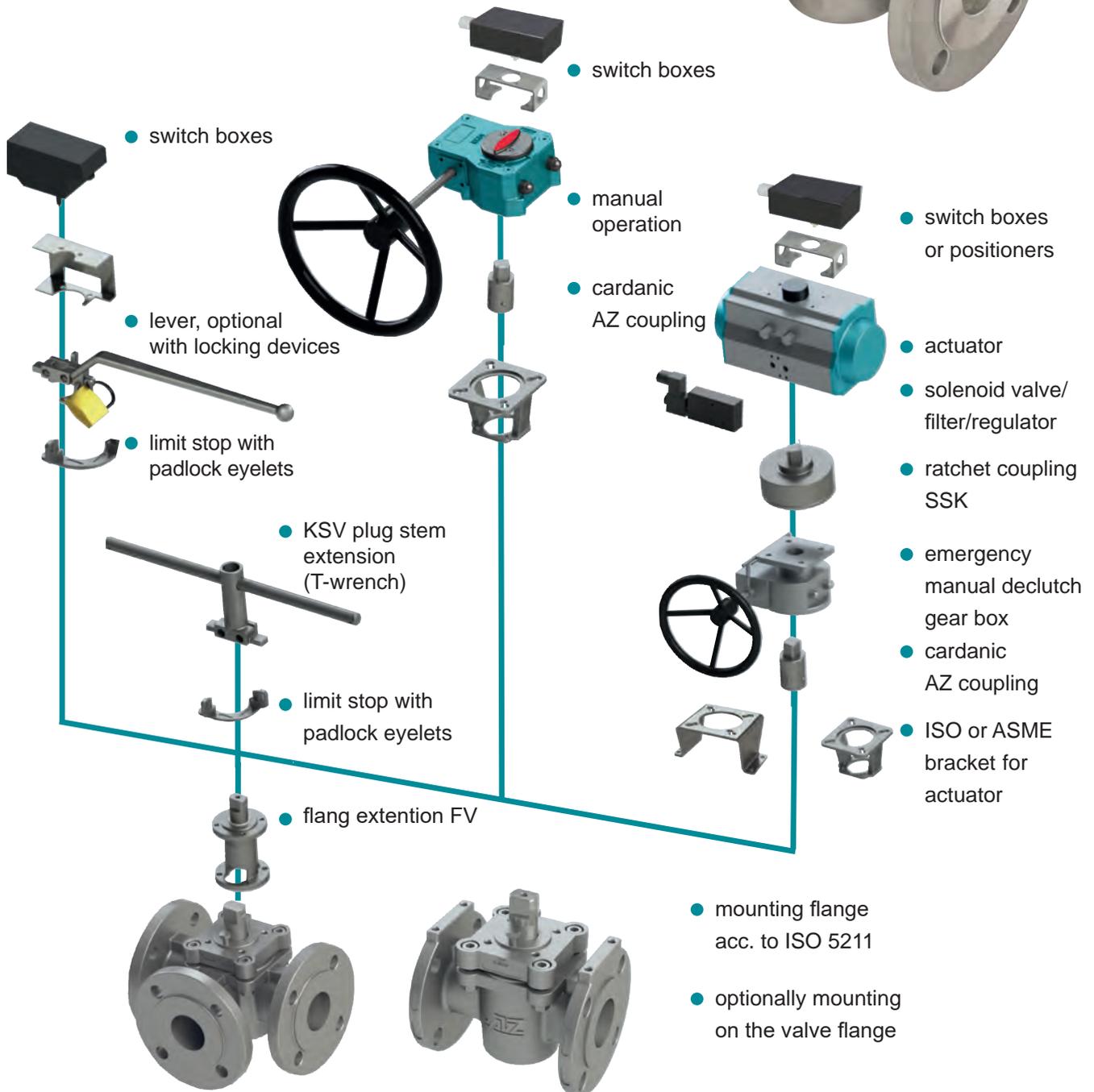
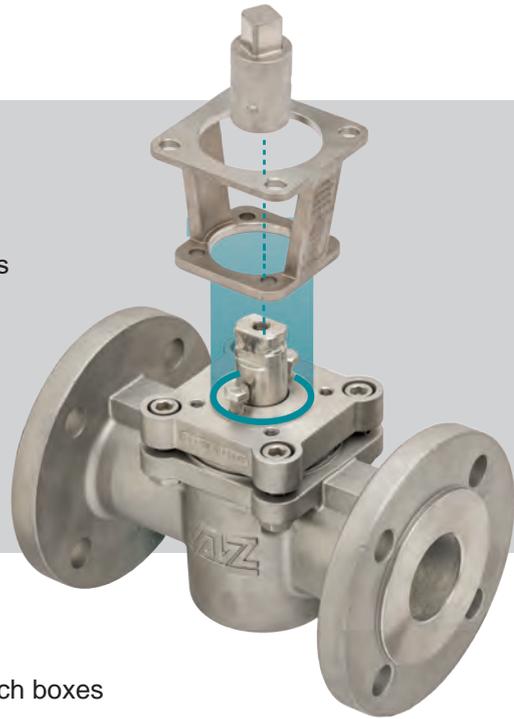
Flexible design

Modular

- actuation by hand lever, gearbox or actuator
- mounting with bracket according to ISO 5211
- alternatively with flange extension (FV) or other accessories

Safe

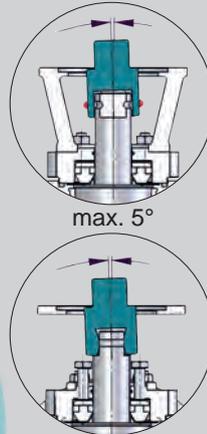
- safe due to independent mounting of cover and bracket to avoid accidental opening of pressurized housings during services



Actuator selection

pneumatic actuators up to 200,000 Nm

Rack-and-Pinion design



Patented cardanic AZ coupling for all AZ valves

- coupling to connect plug shaft and actuator
- no lateral forces on valve stem

Benefit: very long lifetime

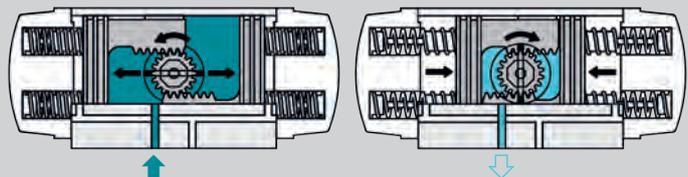
Design characteristics

- single and double acting
- actuator with rotation beyond 90° possible
- with damping and adjustable control time
- fail position open or close
- ATEX suitable
- Partial Valve Stroke test (PVST) possible
- SIL 3 suitable

Functionality

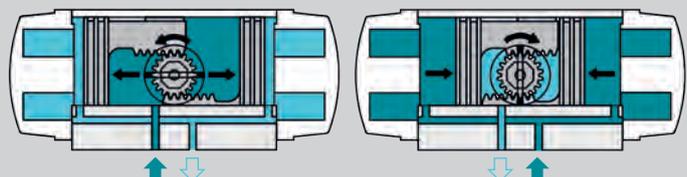
Single acting actuators

- pneumatic actuation (compressed air) to open or close a valve in one direction
- reset with integrated spring package
- fail safe position



Double acting actuators

- pneumatic actuation (compressed air) to open and close a valve
- no safety position in case of air failure



Scotch-Yoke design



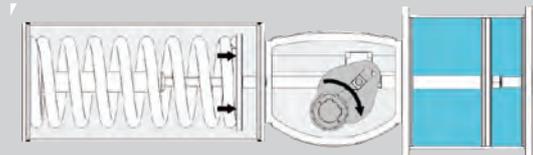
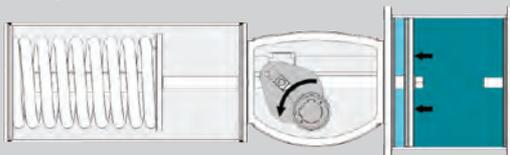
Design characteristics

- for high torques
- single and double acting
- fail position open or close
- ATEX suitable
- Partial Valve Stroke test (PVST) possible
- SIL 3 suitable

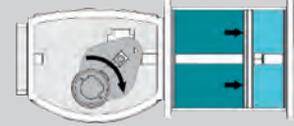
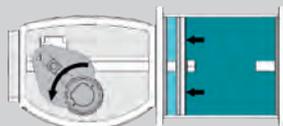


Functionality

Single acting actuators

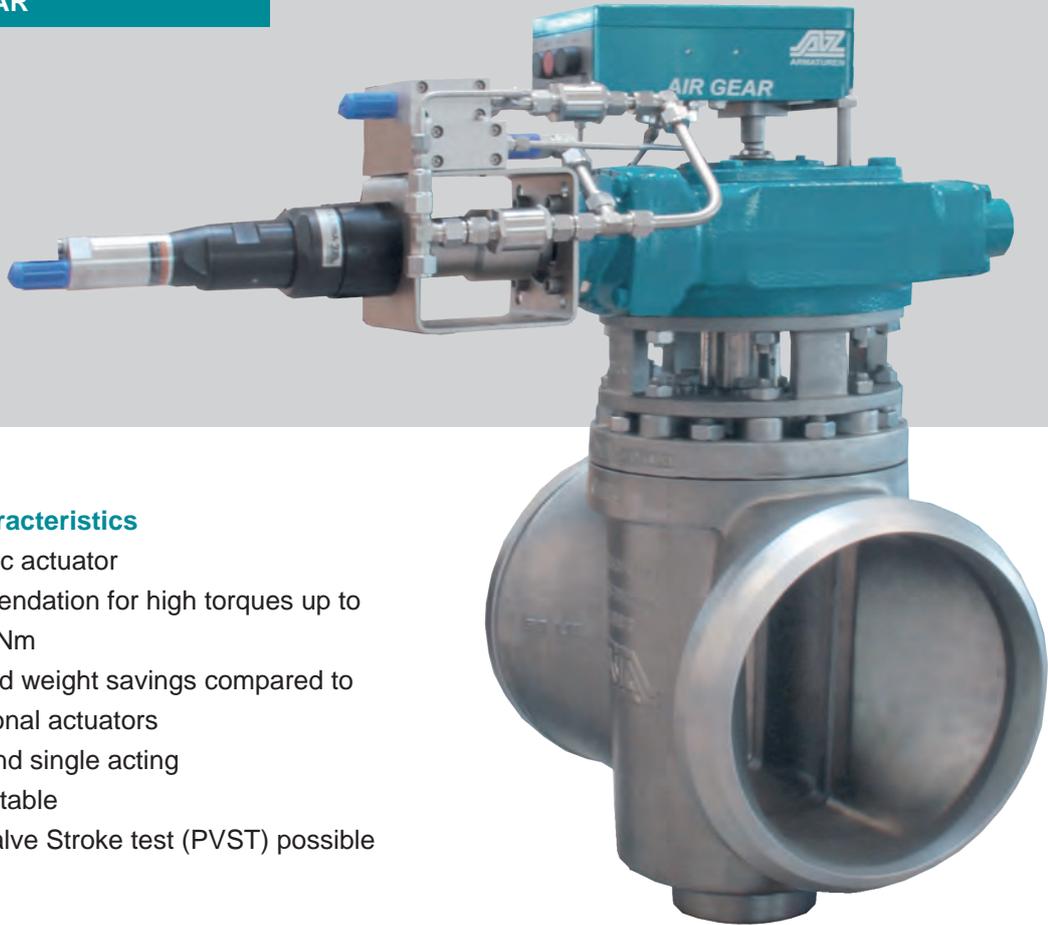


Double acting actuators



AIR-GEAR and hydraulic actuators

AZ-AIR-GEAR



Design characteristics

- pneumatic actuator
- Recommendation for high torques up to 200,000 Nm
- space and weight savings compared to conventional actuators
- double and single acting
- ATEX suitable
- Partial Valve Stroke test (PVST) possible

Hydraulic actuators

- high torques
- compact design
- double and single acting
- electro-hydraulic version with fail-safe function available
- use of existing hydraulic systems for valve actuation
- ATEX suitable
- SIL 3 compatible



Electric actuators

Electric actuators

- different voltages (1-phase, 3-phase, AC / DC)
- with integrated control unit available
- very high torques in combination with gearbox
- ATEX optional
- SIL 3 compatible



Design characteristics

- ON / OFF control or regulation
- multi position actuator
- integration of additional modules (torque switch, stroke limitation, limit switch etc.)
- declutchable gear box
- locking devices
- flange extension
- protection class e.g. ATEX Ex d
- other materials
- on-site operation

Range of application:

-10 < T < 150°C

others on request



Actuator accessories



Limit switches

- control of end positions
- mechanical or inductive
- in combination with Doppler module if positioner is used



Positioner

- Installation
 - directly on actuator
 - external (e.g. due to vibrations)
- various bus systems / protocols (HART etc.)
- integral accessories
 - position feedback
 - Solenoid valve etc.



Filter / Air set

- provides clean compressed air
- no moisture
- constant outlet pressure for precise control



Solenoid valve

- Interface between electrical control panel and pneumatic actuator
- controls actuator movement
- for emergency shut-off function in combination with positioner



Interface adapter

- double mechanical interface acc. to EN15714 on one actuator
- for combination of positioner with switch box
- synchron und parallel
- all limit position signals can be monitored with sensors / reports



Booster

- for fast opening / fast closing
- in combination with positioner possible

Additional and optional equipment



On-site operation switch

- user-friendly
- safe handling
- simple commissioning



Manual Fail-Safe

- in case of toxic media
- spring return lever, different springs available
- spring effect clockwise or counter-clockwise



Declutchable gear box

- decoupling of actuator
- manual operation in case of automation failure



oval lever

- various sizes on request

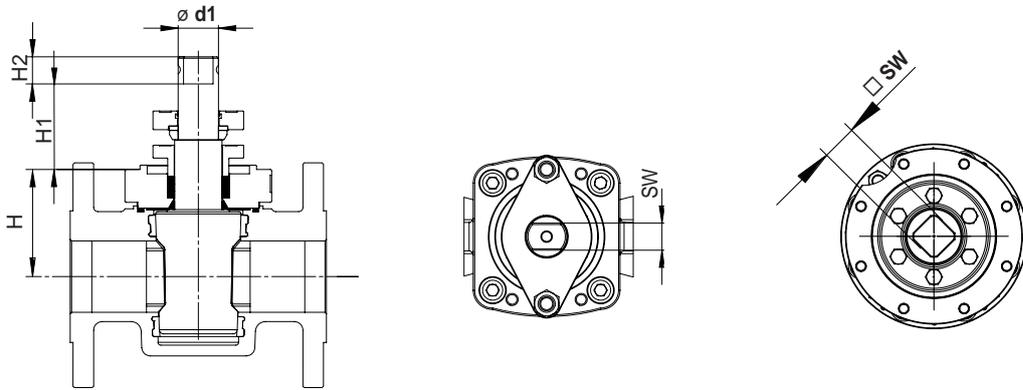


ATEX design

- for accessories and actuator
- positioner optionally in intrinsically safe or flameproof encapsulation
- special designs

Shaft dimensions

Bracket acc. to ISO 5211



DN	NPS	ø d1 [mm]	SW [mm]	□ SW [mm]	for sealing system STD / CA / FS			for sealing system CASN / FSN		
					H [mm]	H1 [mm]	H2 [mm]	H [mm]	H1 [mm]	H2 [mm]
15	½	16	11	-	40,5	18,5	13	40	44	13
20	¾	16	11	-	40,5	18,5	13	40	44	13
25	1	16/20*	11/14*	-	47/59*	18,5/21*	13/19*	46/62*	44/60*	13/16*
40	1½	20	14	-	59	21	19	62	60	16
50	2	28	19	-	71,5	27	19	75	60	19
80	3	32	22	-	88	27	25	87	74	25
100	4	32	22	-	88	27	25	87	74	25
100S	4S	32	22	-	102	28	25	102	74	25
125	5	50	-	36	150	28	34	150	79	34
150	6	50	-	36	150	28	34	150	79	34
200	8	55	-	36	178	31	40	176	82	40
250	10	72	-	55	207	36	45	210	100	45
300	12	72	-	55	230	36	45	230	100	45

Bracket acc. to ISO 5211

Flange dimensions acc. to technical informations of the valve and actuator / gear

Bracket (valve flanges) acc. to ASME on request



AZ coupling

„parallel“
US standard

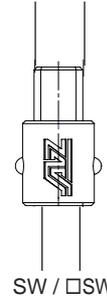


AZ coupling

„diagonal“
EU standard



SW1



Bracket acc. to ISO 5211	Bracket overload [Nm _{max}]	SW 1 [mm]
F05	125	14
F07	250	17
F10	500	22
F12	1000	27
F14	2000	36
F16	4000	46
F25	8000	55
F30	16000	75

*) Dimensions for lined plug valves with higher pressure ratings