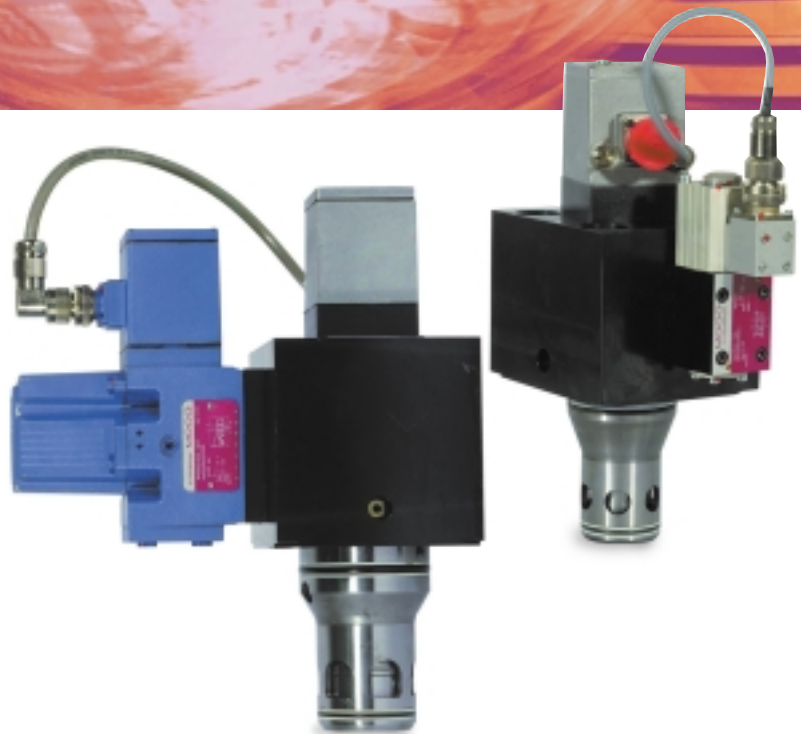


# MOOG

## DSHR Servovalve NG40, 50, 63, 80



Section	Page
General Description	3
Symbols and Cone Types	4
Specifications	5
Pin Assignment	6
Characteristic Curves	7
Standard Models	8-9
Dimensions	10-15
Ordering Information	16
Spare Parts	17

This catalog is for users with technical knowledge. To ensure that all necessary characteristics for function and safety of the system are given, the user has to check the suitability of the products described herein. In case of doubt, please contact Moog.

## GENERAL DESCRIPTION

### Servovalve for the manifold mounting

Stepless flow from A to B or B to A.

Pilot valve ❶ mounting directly on valve housing.

### Technical Design


The valve is comprised of 6 main groups:

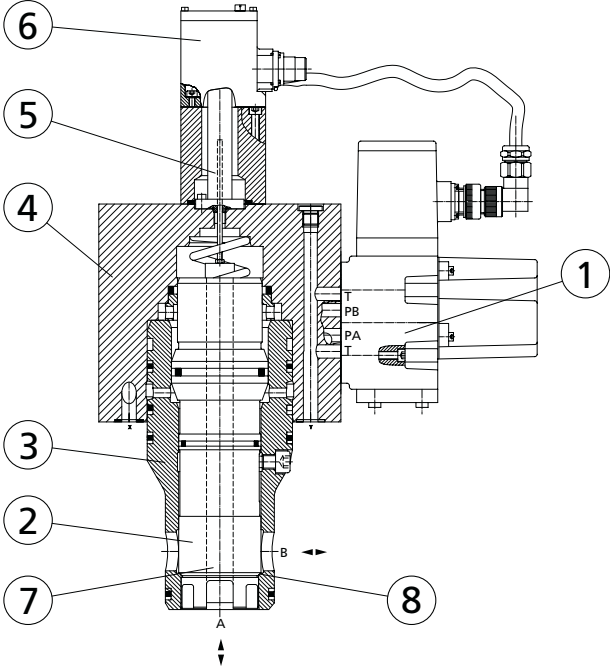
- ❶ Pilot Valve
- ❷ Main stage cone
- ❸ Sleeve
- ❹ Valve housing
- ❺ Position transducer
- ❻ Integrated control electronics

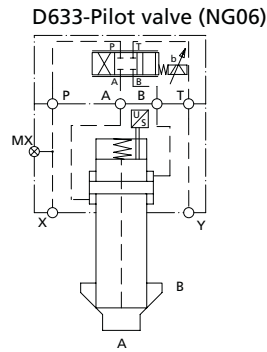
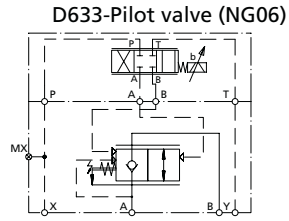
### Function Description

- Main stage cone ❷ with equal driving areas and metallic seat
- Control through a high-quality servo-pilot valve ❶ through connections PA and PB
- Shut off of the connections A and B through cone-seat ❸ of the main stage ❷ => LEAKAGE FREE
- Pressure balanced by the drilling ❹ in the main stage cone ❷, resulting in a very low displacement force
- Control of the main stage cone through a position transducer ❺
- Closed loop through integrated electronics ❻
- No signal to the pilot valve ❶ leads to a defined closing of the main-stage

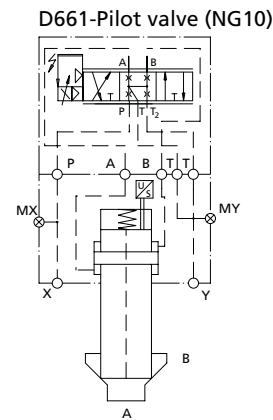
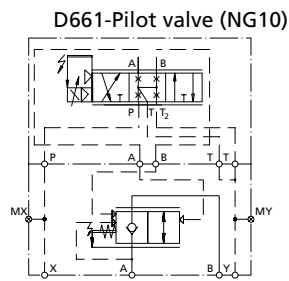
**Recommendation:** For Valves with NG10- or NG16-pilot-valve (High response valve) => accumulator in the X- and if required the Y-port of valve ❹

 Improper wiring may lead to unchecked movements of the main stage cone and may cause damage to personnel and machine!

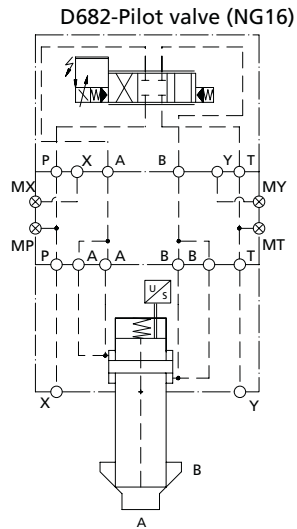
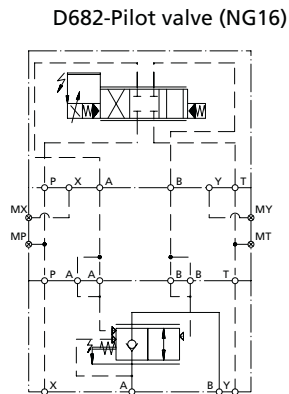




NG40 + NG50 (D633)

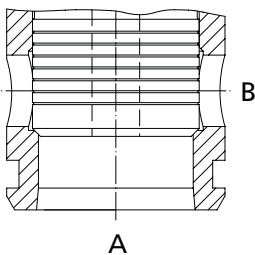


NG40...NG63 (D661)

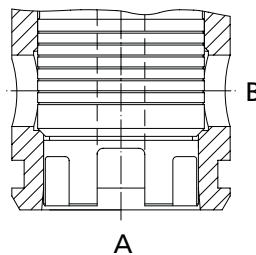


NG80 (D682)

Cone "X"



Cone "V"



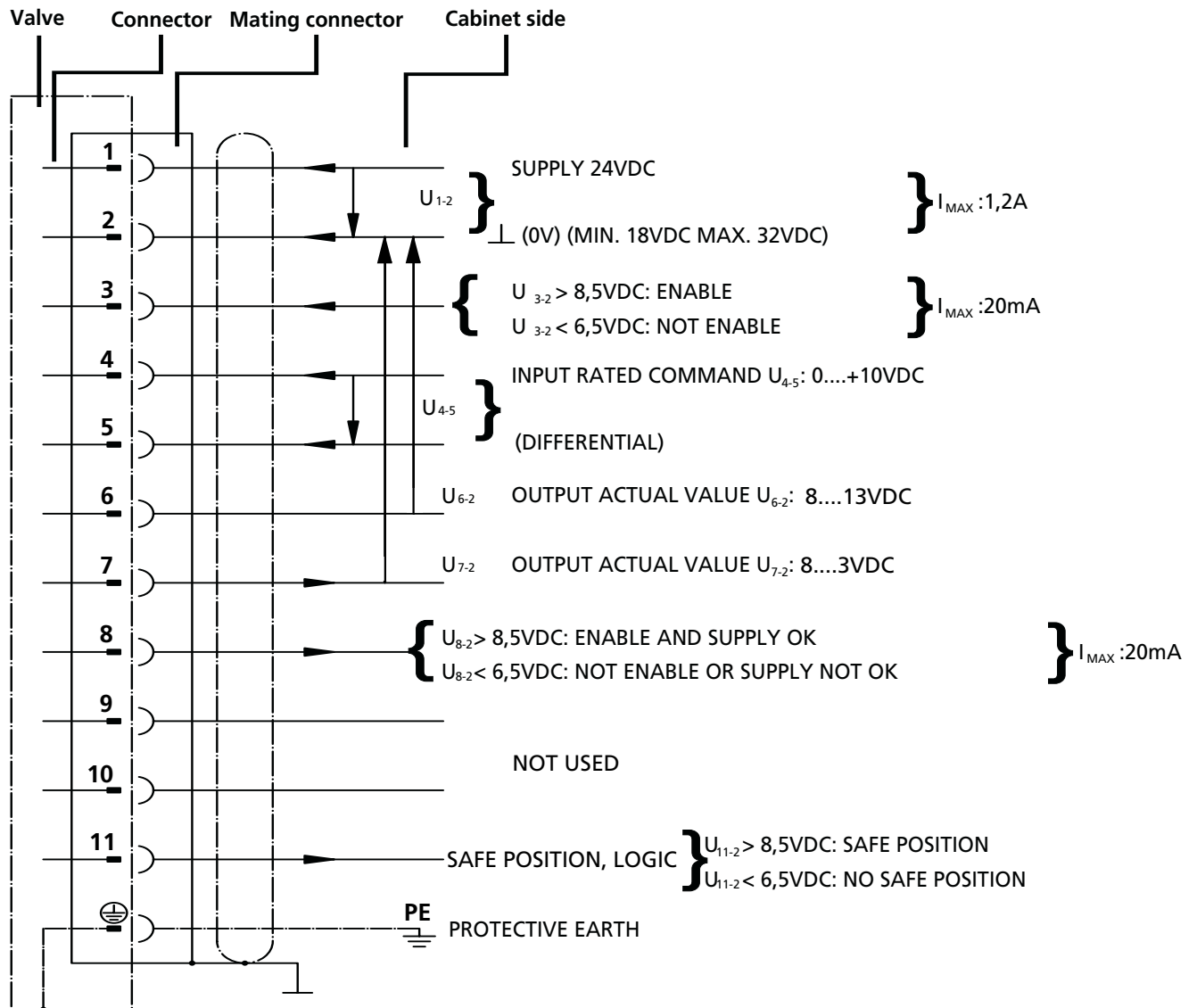
Cone types

General Data	Value	Unit	Specifications
Mode of Construction	-	-	2-way cartridge valve, seat valve with positioning control. Proportional-hydraulically operated with servo pilot valve any
Mounting Position	-	-	any
Mounting Dimensions	-	mm	see Mounting Dimensions, page 10-15
Ambient Temperature Range	min.	°C	-20
	max.	°C	+60
<b>Hydraulic</b>			
Operating Pressure Ports A, B	max.	bar	350/300 at NG63 + NG80 on port A
Pilot Pressure	-	bar	70...280 => D661-Pilot valve 30...280 => D633-Pilot valve 30...350 => D682-Pilot valve
Pressure Fluid Temperature Range	min.	°C	-20
	max.	°C	+80
Direction of Flow	-	-	A => B B => A (recommend at pressure peak > 350 bar)
Viscosity recommended		mm <sup>2</sup> /s	15.....45
allowable		mm <sup>2</sup> /s	5.....400
<b>Filtration of the Pressure Fluid</b>			
Recommended cleanliness class for normal operation			ISO 4406 < 15 / 12
Recommended cleanliness class for longer life			ISO 4406 < 14 / 11
Filter rating recommended for normal operation			β <sub>10</sub> ≥ 75 (10 μm absolute)
Filter rating recommended for longer life			β <sub>6</sub> ≥ 75 (6 μm absolute)
<b>Nominal Size</b>			<b>NG40      NG50      NG63      NG80</b>
Nominal Flow at Δp = 5 bar; X-Cone	Q <sub>N</sub>	l/min	1450      2700      3900      6100
Nominal Flow at Δp = 5 bar; V-Cone	Q <sub>N</sub>	l/min	850      1100      2200      3000
Maximum Permissible Flow	Q <sub>MAX</sub>	l/min	3000      5500      8000      12000
Control stroke of main spool	-	mm	14      14      24      24
Pilot Flow	V <sub>st</sub>	cm <sup>3</sup>	8.1      10.4      28.3      52.3
Pilot Valve: (NG40-NG80) (High response valves)			Series D661 => NG40 to NG63 Series D682 => NG80
Pilot valve: (only NG40 + NG50)			Series D633 => NG40+NG50
Nominal Flow at Δp = 5 bar* for Pilot Valve	Q <sub>N</sub>	l/min	8 => D633-Pilot valve 35 => D661-Pilot valve 150 => D682-Pilot valve
Max. Null Leakage Flow at p <sub>x</sub> = 210 bar on the Pilot Valve	Q <sub>L</sub>	l/min	0.3 => D633-Pilot valve 3.5 => D661-Pilot valve 3 => D682-Pilot valve
<b>Static Dynamic</b>			
Hysteresis	-	%	< 0.2
Response time for Signal Change 0...100% at p <sub>x</sub> = 160 bar w/ accumulator D661 or D682-Pilot valve	-	ms	12      15      20      18
Response time for Signal Change 0...100% at p <sub>x</sub> = 160 bar w/out accumulator D633-Pilot valve	-	ms	22      25      -      -

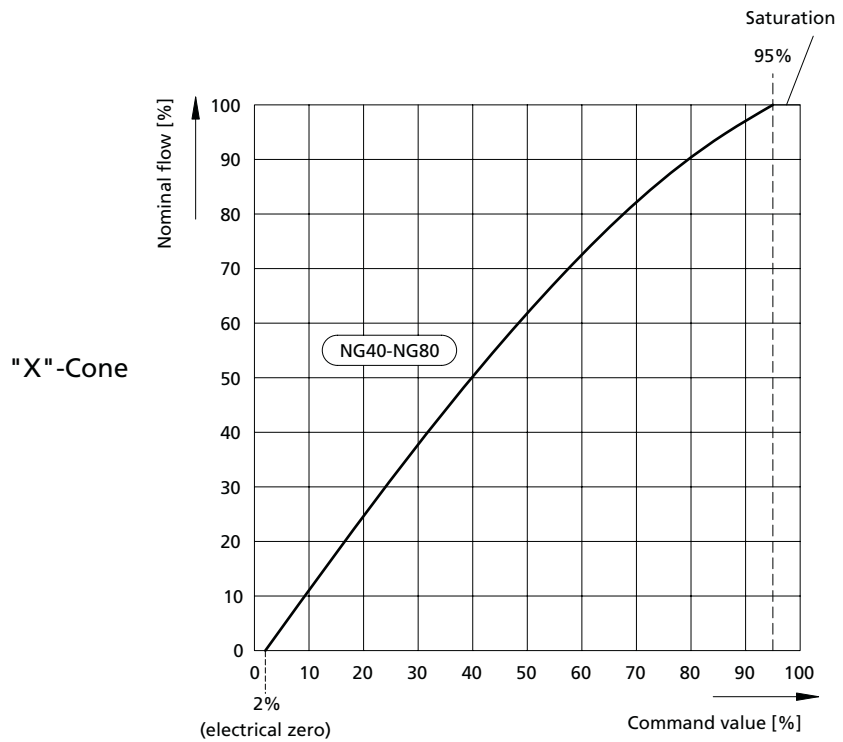
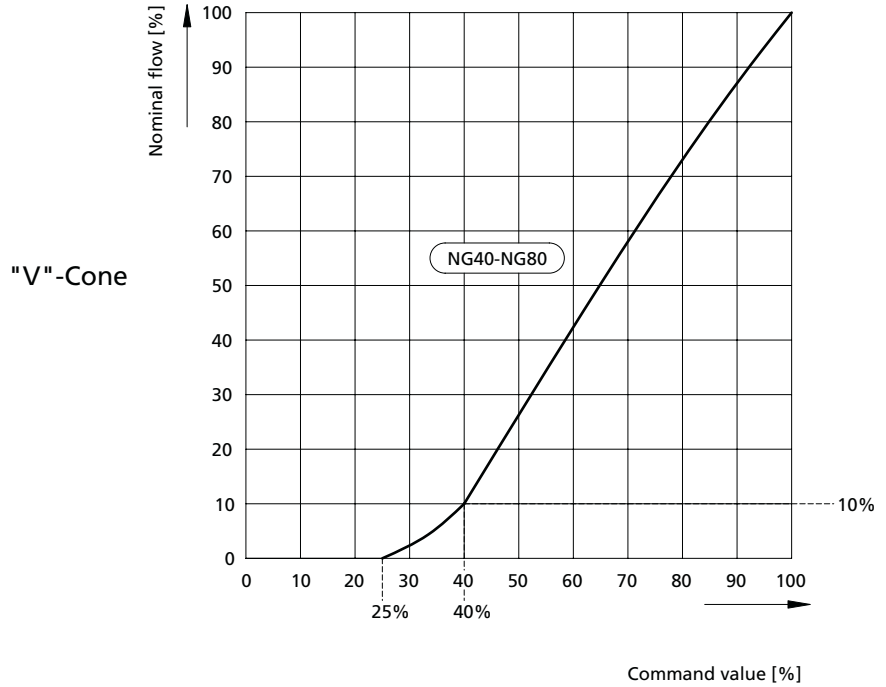
\* Nominal Flow per land  
Flow Rate at a Different Δp:

$$Q_x = Q_N \cdot \sqrt{\frac{\Delta p_x}{5}}$$

**POLE CONNECTOR TO DIN 43 651, AND MATING CONNECTOR (TYPE E, METAL SHELL) WITH LEADING PROTECTIVE EARTH CONNECTOR (≡)**



FLOW CHARACTERISTICS (MEASURED AT  $v = 32\text{MM}^2/\text{S}$  AND  $T = 40^\circ\text{C}$ )  
NOMINAL FLOW AT  $\Delta p = 5\text{ BAR}$



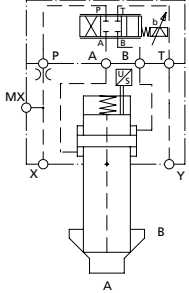
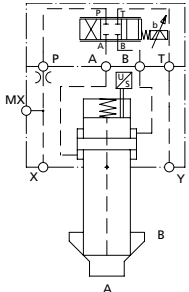
**DSHR STANDARD VALVE FOR NG40-NG63 CONTROLLED BY D661 PILOT VALVE**  
**DSHR STANDARD VALVE FOR NG80 CONTROLLED BY D682 PILOT VALVE**

Symbol	Cone	NG	QN [l/min] at $\Delta p = 5 \text{ bar}$	Description	Part Number
	X	40	1450	N-DSHRE40B6XB04A1AA02X	XLB10036-000N01
	V	40	850	N-DS HRE40B6VB04A1AA02X	XLB10037-000N01
	X	50	2700	N-DSHRE50B6XB04A1AB01X	XLB10038-000N01
	V	50	1100	N-DSHRE50B6VB04A1AB01X	XLB10039-000N01
	X	63	3900	N-DSHRE63B6XB04A1AC01X	XLB10040-000N01
	V	63	2200	N-DSHRE63B6VB04A1AC01X	XLB10041-000N01
	X	80	6100	N-DSHRE80B6XC02A1AD02X	XLB10049-000N01
	V	80	3000	N-DSHRE80B6VC02A1AD02X	XLB10048-000N01

Nominal size NG100 on request!



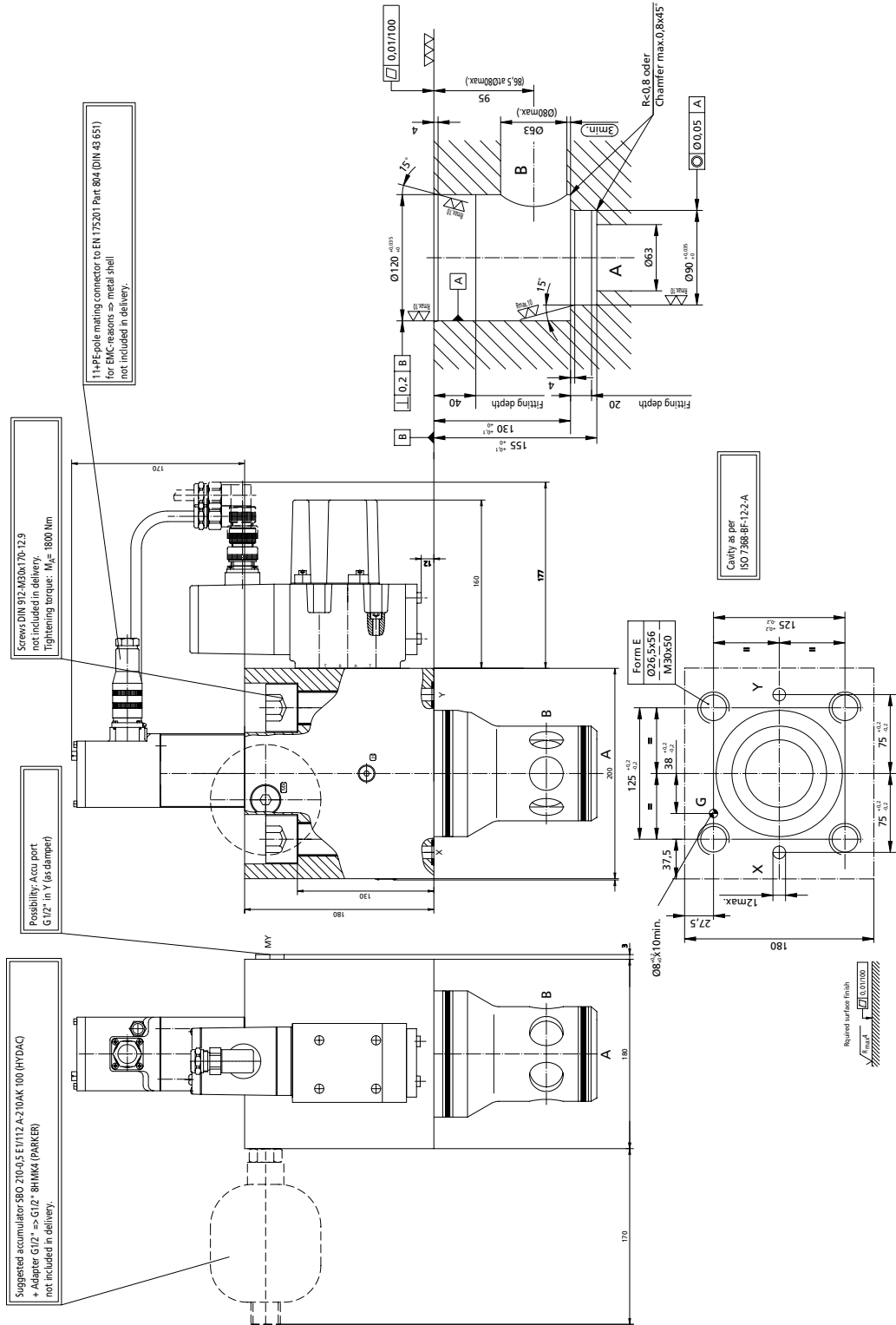
**DSHR STANDARD VALVE FOR NG40-NG50 CONTROLLED BY D633 PILOT VALVE**

Symbol	Cone	NG	QN [l/min] at $\Delta p = 5 \text{ bar}$	Description	Part Number
	X	40	1450	N-DSHRE40B6XA02A1AA01X	XLB10044-000N01
	V	40	850	N-DS HRE40B6VA02A1AA 01X	XLB10045-000N01
	X	50	2700	N-DSHRE50B6XA02A1AB02X	XLB10046-000N01
	V	50	1100	N-DSHRE50B6VA 02A1AB02X	XLB10047-000N01

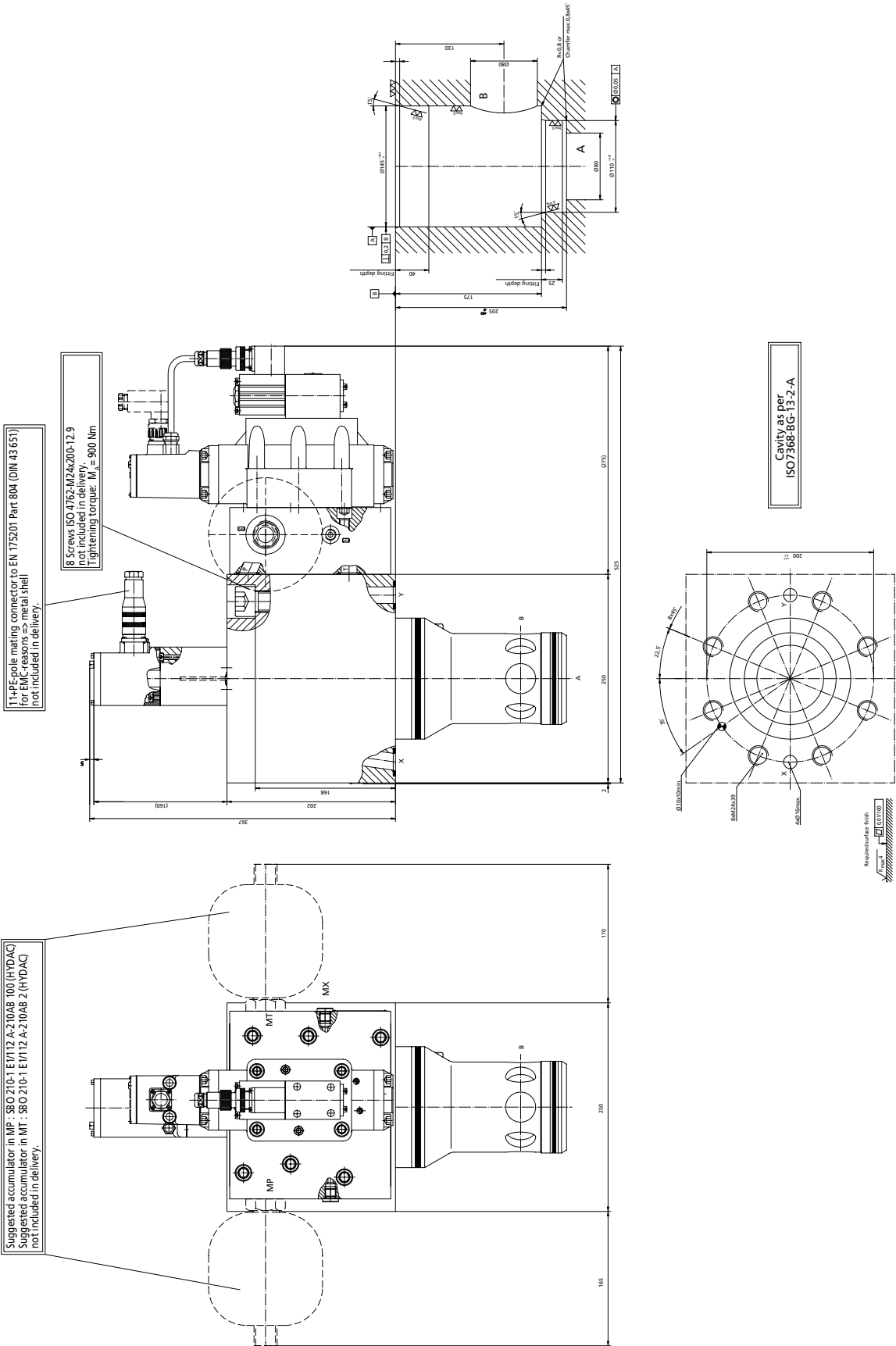




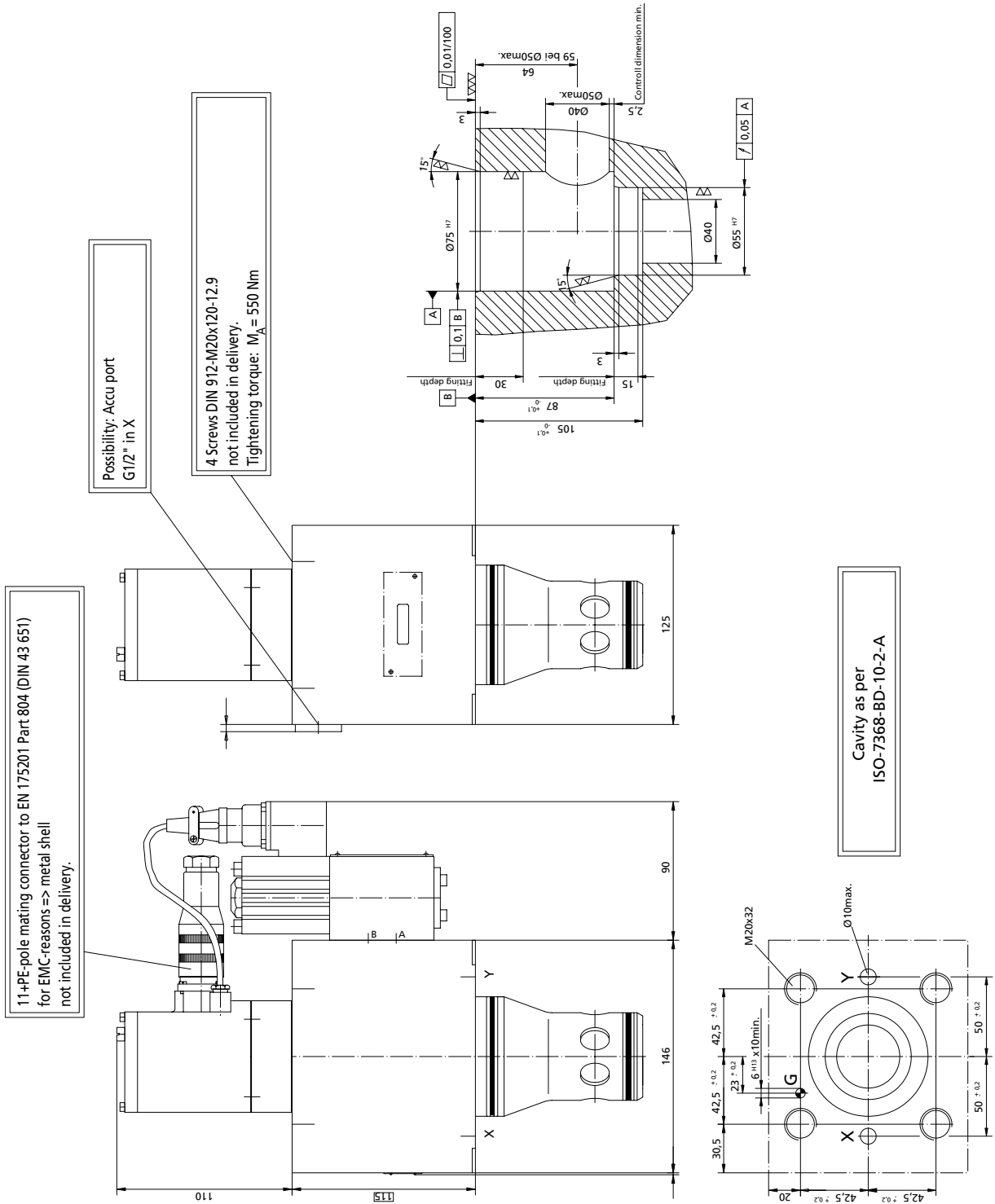
**DIMENSIONS NG63 WITH D661-PILOT VALVE**



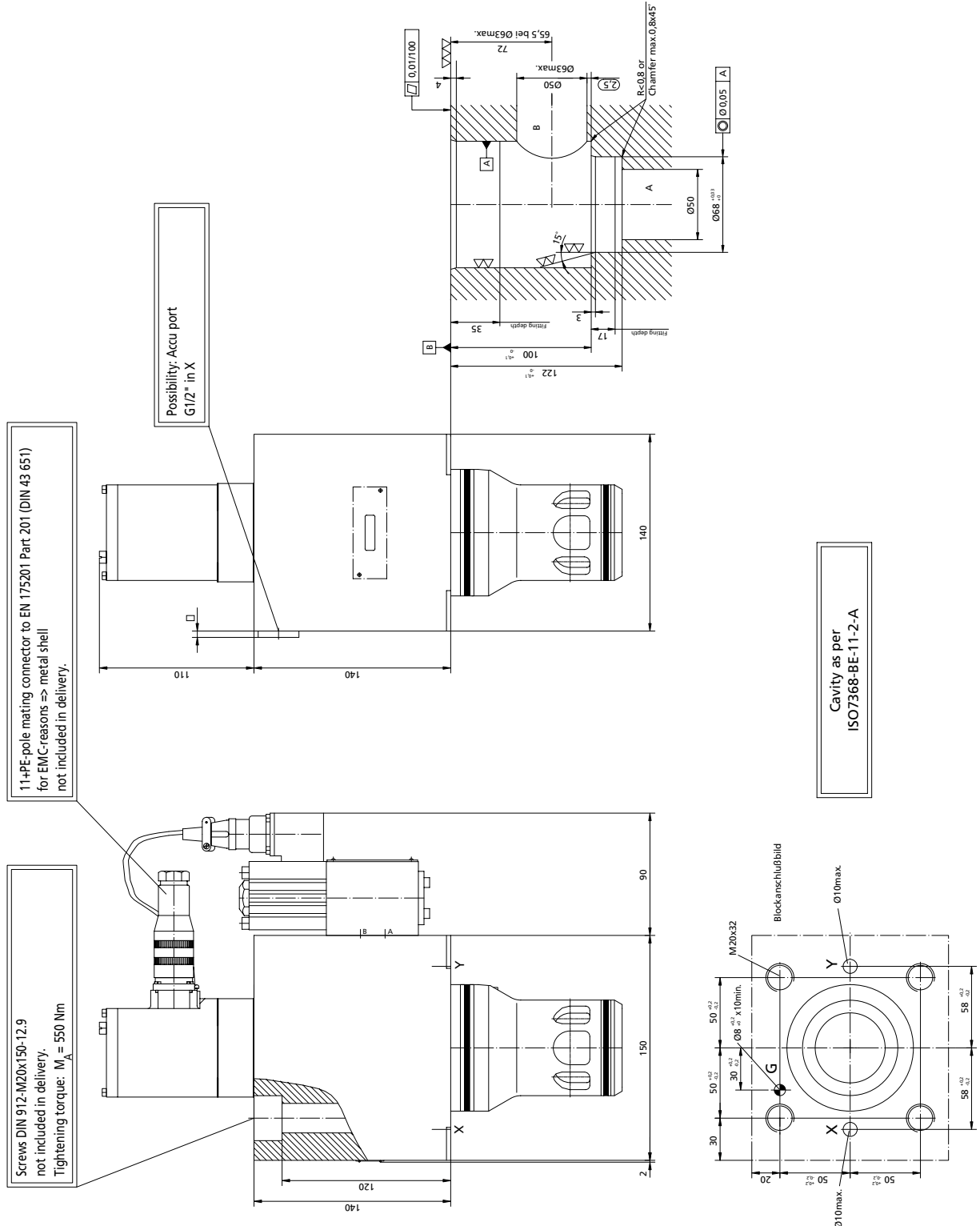
DIMENSIONS NG80 WITH D682-PILOT VALVE



**DIMENSIONS NG40 WITH D633-PILOT VALVE**



**DIMENSIONS NG50 WITH D633-PILOT VALVE**

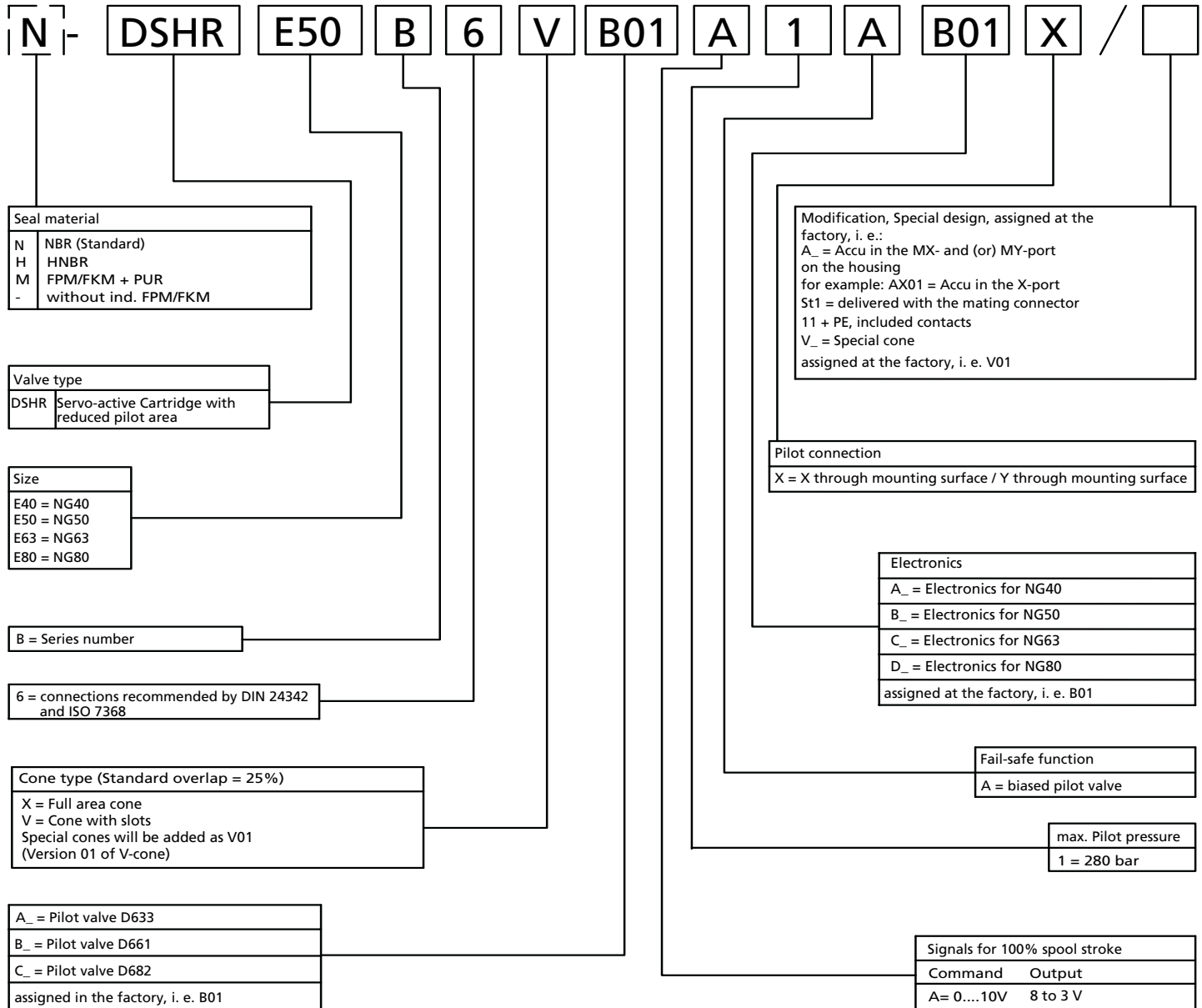


11+PE-pole mating connector to EN 175201 Part 201 (DIN 43 651) for EMC-reasons => metal shell not included in delivery.

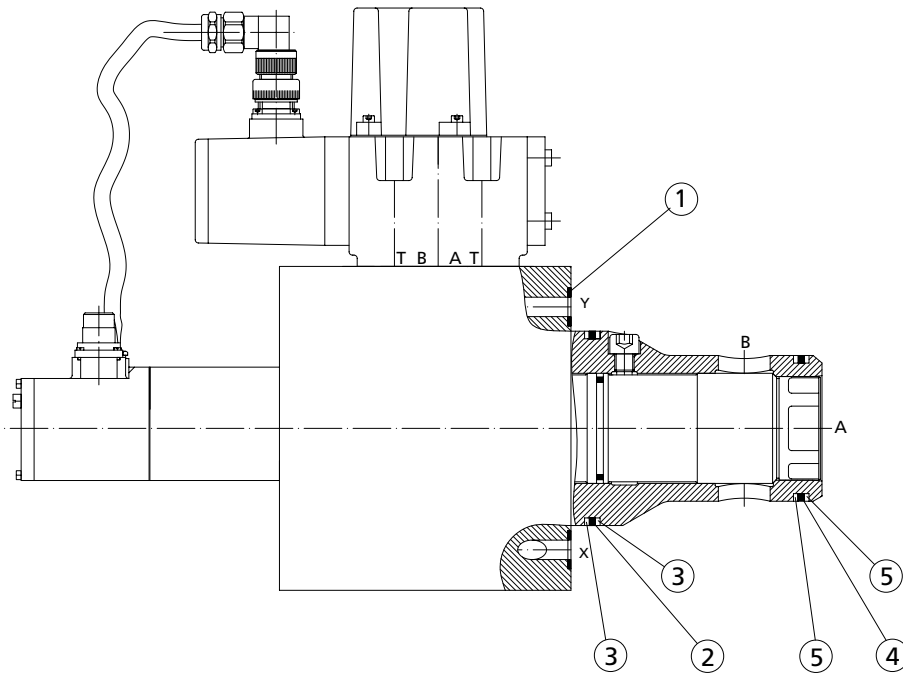
Possibility: Accu port G1/2" in X

Screws DIN 912-M20x150-12.9 not included in delivery. Tightening torque:  $M_A = 550 \text{ Nm}$


Cavity as per ISO7368-BE-11-Z-A







Position	Designation	Part Number				
			NG40	NG50	NG63	NG80
1	Seal Kit	XEB	17680-000N00	17681-000N00	17682-000N00	17683-000N00
1	O-Ring	X783-	00207	00207	00293	00281
2	O-Ring	X980-	00204	00270	00297	00283
3	Back-Up Ring	X780-	18231	18338	08348	08431
4	O-Ring	X783-	00205	00268	00270	00282
5	Back-Up Ring	X780-	18225	18229	18338	18344
	<b>Designation</b>		<b>Accessories (not part of delivery)</b>			
	Screws	Qty.	4x	4x	4x	8x
	DIN EN ISO 4762-12.9	X784-	12008	12010	13004	12409
	Mating Connector	XEB	17725-000-00	17725-000-00	17725-000-00	17725-000-00

 All seals are NBR (Buna) seals. Viton seals on request.

Order example: O-Ring NBR Pos. 4 NG40 => Part number: X783-00205





**Argentina**  
**Australia**  
**Austria**  
**Brazil**  
**China**  
**Finland**  
**France**  
**Germany**  
**India**



**Ireland**  
**Italy**  
**Japan**  
**Korea**  
**Luxembourg**  
**Norway**  
**Russia**  
**Singapore**  
**Spain**  
**Sweden**  
**United Kingdom**  
**USA**

**MOOG**

**Industrial Controls Division**

Moog Inc., East Aurora, NY 14052-0018

Telephone: 716/655-3000

Fax: 716/655-1803

Toll Free: 1-800-272-MOOG

[www.moog.com](http://www.moog.com)