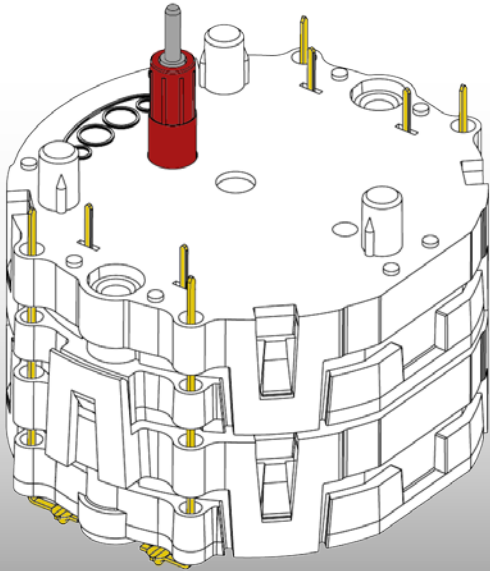




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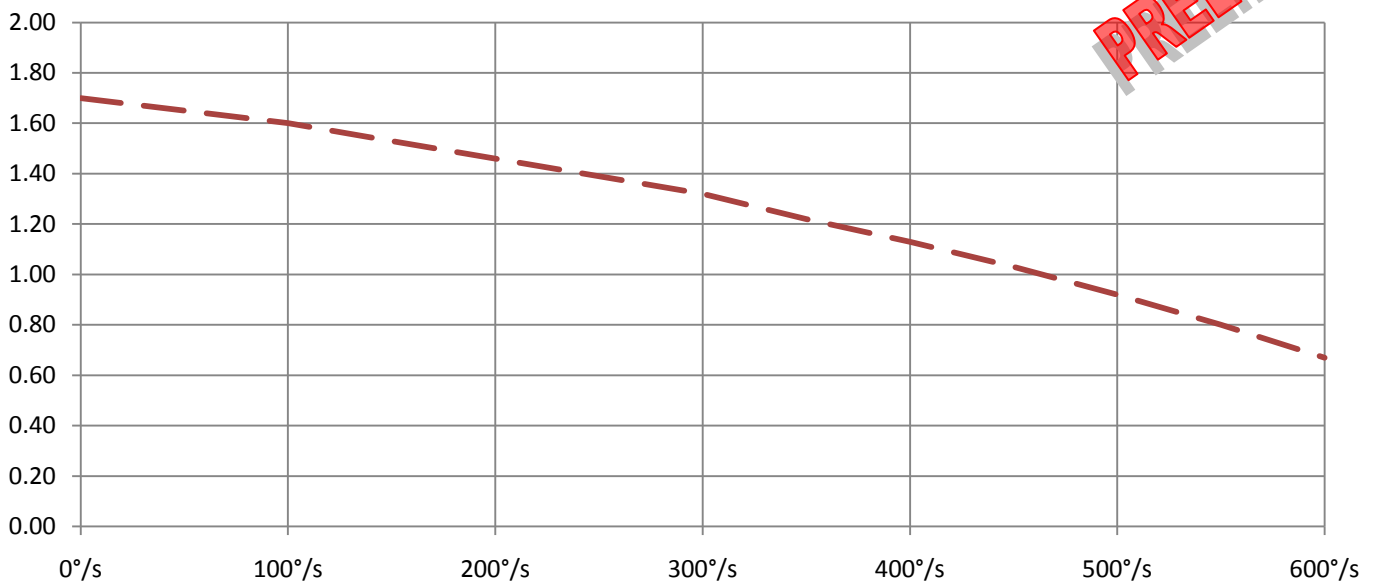
## X40



Automotive instrumentation  
stepper motor

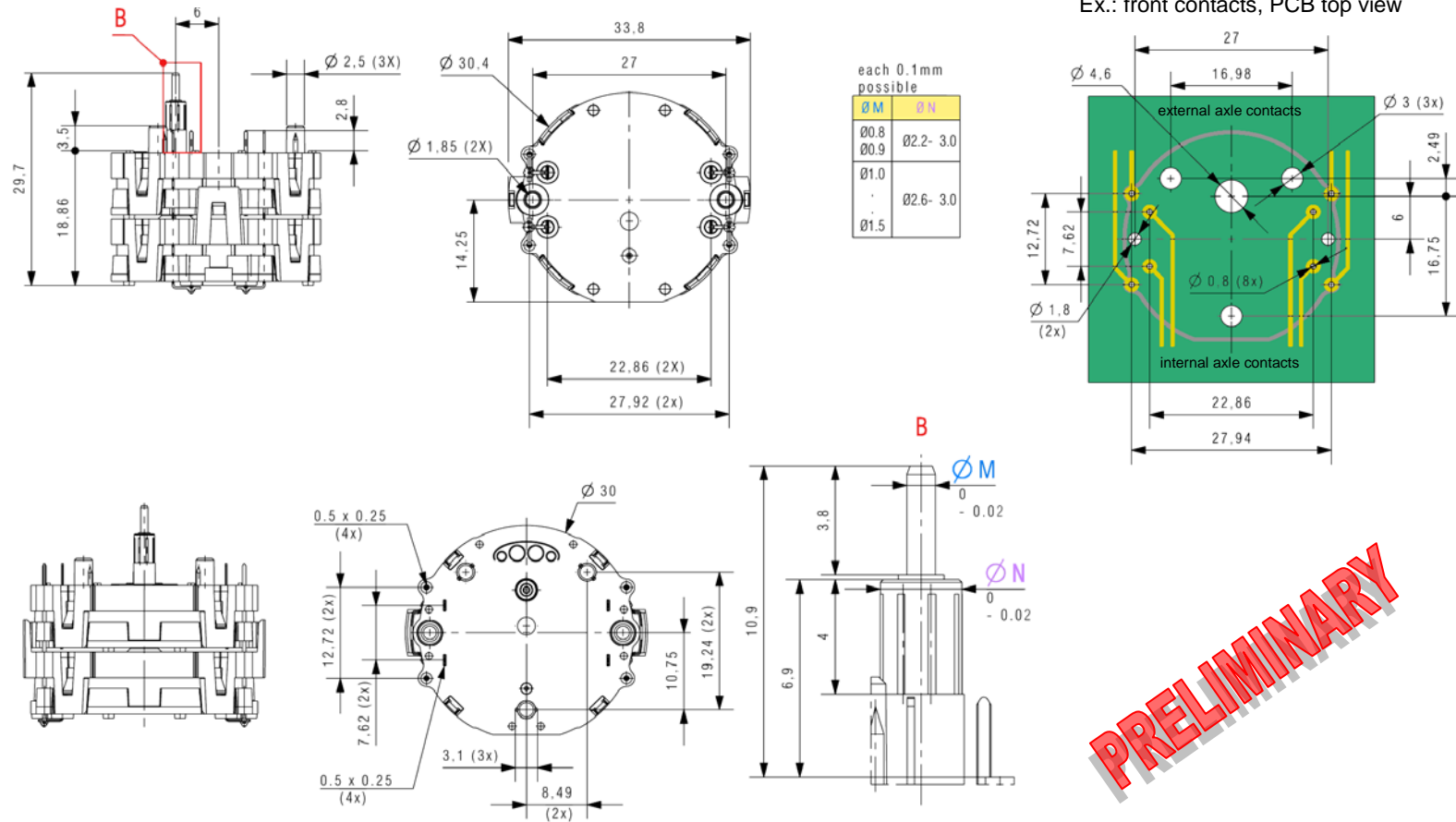
- Dual coaxial shaft, independent
- Up to 600°/s each
- For overlay ranges & dual ranges
- Front contacts
- Different optional diameters available for shafts
- Vertical construction for minimum surface on circuit board and better guidance of shafts

Dynamic torque [mNm] on each shaft



**PRELIMINARY**

Speed [°/s]



$T_{amb} = 25^{\circ}C$

		Min.	Typ.	Max.	Unit
1	Dynamic torque in the pointer shaft at 200°/s and 5.0V <sub>DC</sub> supply	1.0	1.45		mNm
2	Start-Stop frequency $f_{ss}$ at pointer inertia load $0.2 \times 10^{-6} \text{ kgm}^2$			200	°/s
3	Maximum operating speed $f_{max}$ with an acceleration ramp			600	°/s
4	Angle of rotation with internal stop			315	Degree
5	Holding torque powered	3.5	4.0		mNm
6	Operating voltage		5.0	9.0	V <sub>DC</sub>
7	Coil resistance per coil	230	260	290	ohm
8	Gear play internal coaxial shaft		0.5	1	Degree
9	Gear play external coaxial shaft		0.5	1	Degree
10	Maximum axial force on the pointer shaft Maximum radial force on the pointer shaft			150 12	N N
11	Rotation angle for an electrical period (gear ratio 1:180, phase shift 60°)		2		Degree
12	Noise level per motor, measurement distance 4cm from top of shaft, not mounted, without load, angular speed 300°/s		40		dB(A)
13	Operating Temperature	-40		+105	°C
14	Solder Temperature (10 sec)		260		°C